10 CSR 60 Division 60--Safe Drinking Water Commission

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10 CSR 60-
1.010Public Drinking Water Program--Description Of Organization And Methods Of
Operation

10 CSR 60-1.010 Public Drinking Water Program--Description Of Organization And Methods Of Operation

PURPOSE: This rule complies with section 536.023, RSMo which requires each agency to adopt as a rule a description of its operation and how the public may obtain information or make submissions or requests.

(1) The Public Drinking Water Program is part of the Division of Environmental Quality of the Missouri Department of Natural Resources. Its mission is to assure the provision of safe and adequate public drinking water supplies for residents of and transients in the state.

(2) Public Drinking Water Program activities include program administration; program planning and development; issuance of design guidelines; review of plans and specifications; data processing; maintenance of records; issuance of permits, variances and exemptions; technical assistance to regional offices, other state agencies and the director of the Department of Natural Resources; monitoring water quality; evaluating and reporting of results of laboratory analysis; public information; requesting legal action; and grant administration.

(3) Drinking water activities in the regional offices of the Division of Environmental Quality include surveillance and evaluation of the adequacy and condition of public water systems. At a frequency to be determined by the department, the department shall conduct sanitary surveys and on-site inspection and surveillance observations of public water systems including, but not necessarily limited to, a review of the following: waterworks system physical facilities and equipment; administration and recordkeeping; training of operators; sampling techniques and monitoring activities for water quality; the maintenance program for the waterworks system; design and operation of the waterworks system; the competency of the supplier of water; a cross-connection control program; the reliability of the water system; water quality; and the emergency operation plan.

(4) Laboratory services include the analysis of water samples for physical, chemical, radiological and bacteriological parameters.

(5) The Department of Natural Resources--

(5)(A) Exercises general supervision of the administration and enforcement of regulations providing for the safety of public water systems and adequate amounts of safe drinking water for the people of this state;

(5)(B) Develops comprehensive plans and programs designed to assure safe public water systems and adequate amounts of safe drinking water for the people of this state;

(5)(C) Accepts and administers loans and grants from the federal government and from other sources, public or private, for carrying out any of its functions, which loans and grants shall not be expended for other than the purposes for which provided;

(5)(D) Encourages, participates in or conducts the studies, surveys, sanitary surveys, investigations and research and demonstrations relating to safe drinking water as it may deem advisable for the discharge of its duties;

(5)(E) Through the Sate Drinking Water Commission, adopts, amends and rescinds rules, after due public notice and hearing, including primary and secondary drinking water regulations, to enforce, implement and effectuate the purposes or provisions of the Missouri Safe Drinking Water Act, or as the department may determine necessary to assure safe public water systems;

(5)(F) Issues, modifies or revokes orders, and prohibits or abates the dispensing of water from any public drinking water system which the department determines is not in compliance with maximum contaminant levels. The department may adopt other remedial measures to prevent the dispensing to the public water that is not of safe quality;

(5)(G) Holds hearings, issues notices of hearings and takes testimony as the department director deems necessary to perform the duties of the department under the Missouri Safe Drinking Water Act. Any of these powers may be exercised on behalf of the department director by a hearing officer designated by him/her; and

(5)(H) Enters into agreements, contracts or cooperative arrangements with other state agencies, federal agencies, interstate agencies, political subdivisions, educational institutions, local health departments or other organizations and individuals for the purpose of administering the state Public Drinking Water Program.

(6) Safe Drinking Water Commission.

(6)(A) Duties. The Safe Drinking Water Commission is charged with promulgating rules necessary for the implementation, administration and enforcement of Missouri's safe drinking water statutes.

(6)(B) Membership.

(6)(B)1. The nine (9) members of the commission are appointed by the governor, with the advice and consent of the senate.

(6)(B)2. Four (4) members of the commission shall be associated with the operation of public water systems, as follows:

(6)(B)2.A. One (1) member shall be associated with a public water system serving less than or equal to seventy-five (75) persons;

(6)(B)2.B. One (1) member shall be associated with a public water system serving seventy-six (76) to two thousand five hundred (2,500) persons;

(6)(B)2.C. One (1) member shall be associated with a public water system serving two thousand five hundred one (2,501) to one hundred thousand (100,000) persons; and

(6)(B)2.D. One (1) member shall be associated with a public water system serving more than one hundred thousand (>100,000) persons.

(6)(B)3. Five (5) members of the commission shall represent the water-drinking public.

(6)(B)4. To the greatest extent possible, the various associations representing water suppliers of the size classes indicated in subparagraphs (4)(B)2.A.-D. of this rule shall be represented on the commission.

(6)(C) Qualifications.

(6)(C)1. All members of the commission shall have demonstrated an interest in and knowledge about water quality.

(6)(C)2. All members shall be qualified by interest, education, training or experience to provide, assess and evaluate scientific technical information concerning drinking water, financial requirements and the effects of the promulgation of standards and rules.

(6)(D) Organization and Terms of Office.

(6)(D)1. All members shall serve a term of four (4) years, and the term of office shall continue until their successors are selected and qualified. If a vacancy occurs, the governor, with the advice and consent of the senate, appoints a member for the remaining portion of the unexpired term created by the vacancy.

(6)(D)2. Each January the members shall meet and select from among themselves a chair and a vice chair.

(6)(D)3. The commission shall hold at least four (4) regular meetings per calendar year, and any additional regular meetings as the chair deems desirable. Special meetings may be called by the chair or the director of the Department of Natural Resources.

(6)(D)4. Five (5) members of the commission shall constitute a quorum.

(7) Information may be obtained by contacting the Department of Natural Resources, Public Drinking Water Program, P.O. Box 176, Jefferson City, MO 65102. Any submissions and requests from the public are to be sent to this address.

10 CSR 60-2 Chapter 2--Definitions

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10 CSR 60-2.015 Definitions

10 CSR 60-2.015 Definitions

PURPOSE: This rule defines terms used in <u>10 CSR 60</u>.

(1) The terms used in <u>10 CSR 60</u> shall have the meanings set forth in the Missouri Safe Drinking Water Act, the federal Safe Drinking Water Act and regulations, or this rule, unless the context of the term clearly requires otherwise. In the event of any conflict or inconsistency, the more stringent definition shall apply.

(2) Definitions.

(2)(A) Terms beginning with the letter A.

(2)(A)1. Action level. The concentration of lead or copper in water which determines, in some cases, the treatment requirements, system modifications, public education, or other requirements as specified by the department that a water system is required to complete.

(2)(A)2. Air-gap separation. A backflow prevention assembly consisting of a physical separation between the free-flowing discharge end of a public water system pipeline and an open or nonpressurized receiving vessel. An approved air-gap separation shall be at least twice the diameter of the system pipe measured vertically above the overflow rim of the vessel. In no case shall the distance be less than one inch (1").

(2)(A)3. Alpha particle. A particle identical with a helium nucleus, emitted from the nucleus of a radioactive element.

(2)(A)4. Applicant. The legal name of the public water system for purposes of 10 CSR-60.

(2)(A)5. Auxiliary intake. Any piping, connection, or device whereby water may be secured from a source other than the primary source.

(2)(A)6. Auxiliary water system. Any supply or source of water other than the approved public water system.

(2)(B) Terms beginning with the letter B.

(2)(B)1. Backflow. The undesirable reversal of flow of water or mixtures of water and other liquids, gases, or other substances into the public water system from any source(s).

(2)(B)2. Backflow hazard. Any facility which, because of the nature and extent of activities on the premises or the materials used in connection with the activities or stored on the premises, would present an actual or potential health hazard to customers of the public water system or would threaten to degrade the water quality of the public water system should backflow occur.

(2)(B)2.A. Class I backflow hazard. A backflow hazard which presents an actual or potential health hazard to customers of the public water system should backflow occur. A list of customer facilities, not all inclusive, considered to be Class I backflow hazards is included in 10 CSR 60-11.010.

(2)(B)2.B. Class II backflow hazard. A backflow hazard which would threaten to degrade the water quality of the public water system should backflow occur. A list of customer facilities, not all inclusive, considered to be Class II backflow hazards is included in 10 CSR 60-11.010.

(2)(B)3. Backflow prevention assembly. An assembly designed to prevent the reverse flow of water or other substances from a customer facility back into the public water distribution system. See also definitions of air-gap separation, double check valve, and reduced pressure principle backflow prevention assembly.

(2)(B)4. Backflow prevention assembly tester. A person who utilizes recognized backflow prevention assembly testing procedures to determine whether or not an assembly is functioning properly. Requirements for backflow prevention assembly tester certification are in 10 CSR 60-11.

(2)(B)5. Bag filters. Pressure-driven separation devices that remove particulate matter larger than one (1) micrometer using an engineered porous filtration media. They are typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to the outside.

(2)(B)6. Bank filtration. Water treatment process that uses a well to recover surface water that has naturally infiltrated into ground water through a river bed or bank(s). Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well(s).

(2)(B)7. Best available technology. The best technology, treatment, or other means which the department finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration). For the purpose of setting maximum contaminant levels for synthetic organic chemicals, any best available technology must be at least as effective as granular activated carbon.

(2)(B)8. Beta particle. A particle, identical with an electron, emitted from the nucleus of a radioactive element.

(2)(B)9. Breakpoint chlorination. The point at which sufficient chlorine has been applied to water to satisfy the chlorine demand which should result in a total chlorine residual of at least seventy-five percent (75%) free available chlorine.

(2)(C) Terms beginning with the letter C.

(2)(C)1. Cartridge filters. Pressure-driven separation devices that remove particulate matter larger than one (1) micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.

(2)(C)2. Certificate. The certificate of competency issued by the department stating that a person has met the requirements for the specified operator classification of the certification program under the provisions of 10 CSR 60-14.020.

(2)(C)3. Certificate of examination. A certificate issued to a person who passes a written examination but does not meet the experience requirements for the classification of examination taken.

(2)(C)4. Chief operator. The person designated by the owner of a public water system to have direct, on-site responsibility for the operation of a water treatment plant or water distribution system, or both.

(2)(C)5. Chloramines. All amino or imino groups in which the hydrogen has been replaced totally or in part by chlorine.

(2)(C)6. Class I backflow hazard. See backflow hazard.

(2)(C)7. Class II backflow hazard. See backflow hazard.

(2)(C)8. Coagulation. A process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

(2)(C)9. Combined chlorine residual. That portion of the total chlorine residual which is not free available chlorine.

(2)(C)10. Combined distribution system. The interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

(2)(C)11. Community water system. A public water system which serves at least fifteen (15) service connections and is operated on a year-round basis or regularly serves at least twenty-five (25) residents on a year-round basis.

(2)(C)12. Compliance cycle. The nine (9)-year calendar year cycle during which public water systems must monitor. Each compliance cycle consists of three (3), three (3)-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; and the third begins January 1, 2011 and ends December 31, 2019.

(2)(C)13. Compliance period. A three (3)-year calendar year period within a compliance cycle. Each compliance cycle has three (3), three (3)-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; and the third from January 1, 1999 to December 31, 2001.

(2)(C)14. Confluent growth. A continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion of the area, in which bacterial colonies are not discrete.

(2)(C)15. Consecutive system. A public water system that receives some or all of its finished water from one (1) or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one (1) or more consecutive systems.

(2)(C)16. Consolidated formations. Earth material which has been created by geological processes, cemented, or compacted into a coherent or firm mass.

(2)(C)17. Containment. Protection of the public water system by installation of a departmentapproved backflow prevention assembly or air-gap separation at the user connection from the main service line(s).

(2)(C)18. Contaminant. Any physical, chemical, biological, or radiological substances or matter in water including, but not limited to, those substances for which maximum contaminant levels are established by the department.

(2)(C)19. Conventional filtration treatment. A series of treatment processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

(2)(C)19.A. Required treatment for ground water systems under the direct influence of surface water. One (1) stage of treatment must be provided as follows: rapid mix, flocculation, and sedimentation followed by filtration. Disinfection also shall be provided. Raw water quality characteristics may require additional treatment.

(2)(C)19.B. Required treatment for surface water systems. Two (2) stages of treatment must be provided as follows: primary rapid mix, flocculation, and sedimentation followed by secondary rapid mix, flocculation, and sedimentation, operated in series, followed by filtration and disinfection contact storage. Raw water quality characteristics may require additional treatment.

(2)(C)20. Corrosion inhibitor. 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.

(2)(C)21. Cross-connection. Any actual or potential connection or structural arrangement between a public water system and any other source or system through which it is possible to introduce into any part of the public water system any used water, industrial fluid, gas, or substance other than the intended potable water with which the system is supplied. By-pass

arrangements, jumper connections, removable sections, swivel or change-over devices, and other temporary or permanent devices through which or because of which, backflow can or may occur are considered to be cross-connections.

(2)(C)22. CT. 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 (that is, C multiplied by T (C \times T)). (See also residual disinfectant concentration and disinfectant contact time.)

(2)(C)23. Customer. Any person who receives water from a public water system.

(2)(C)24. Customer service line. The pipeline from the public water system to the first tap, fixture, receptacle, or other point of customer water use or to the first auxiliary water system or pipeline branch in a building.

(2)(C)25. Customer water system. All piping, fixtures, and appurtenances, including auxiliary water systems, used by a customer to convey water on his/her premises.

(2)(D) Terms beginning with the letter D.

(2)(D)1. Department. The Missouri Department of Natural Resources.

(2)(D)2. Department of Health. The Missouri Department of Health and Senior Services.

(2)(D)3. Director. The director of the Missouri Department of Natural Resources.

(2)(D)4. Disinfectant. Includes, but is not limited to, chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic microorganisms.

(2)(D)5. Disinfectant contact time. The "T" in the equation CT. 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 as determined by a department-approved study as outlined in the *Missouri Guidance Manual for Surface Water System Treatment Requirements*, 1992.

(2)(D)6. Disinfection. A process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

(2)(D)7. Domestic or other nondistribution system plumbing problem. A coliform contamination problem in a public water system with more than one (1) service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

(2)(D)8. Dose equivalent. The product of the absorbed dose from ionizing radiation and factors that account for difference in biological effectiveness due to the type of radiation and its

distribution in the body as specified by the International Commission of Radiological Units and Measurements (ICRU).

(2)(D)9. Double check valve assembly. A backflow prevention assembly composed of two (2) single, independently acting, internally spring loaded, approved check valves including tightly closing resilient-seated shutoff valves located at each end of the assembly and fitted with properly located test cocks.

(2)(D)10. Dual sample set. A set of two (2) samples collected at the same time and same location, with one (1) sample analyzed for total trihalomethanes (TTHM) and the other sample analyzed for haloacetic acids 5 (HAA5). Dual sample sets are collected for the purposes of conducting an initial distribution system evaluation (IDSE) and determining compliance with the TTHM and HAA5 maximum contaminant levels (MCLs) under Stage 2 Disinfectants/Disinfection By-Products requirements.

(2)(E) Terms beginning with the letter E.

(2)(E)1. Effective corrosion inhibitor residual. For the purpose of the lead and copper provisions of these rules, a concentration sufficient to form a protective film on the interior walls of a pipe.

(2)(E)2. Engineer. An individual registered as a professional engineer in Missouri.

(2)(E)3. Enhanced coagulation. The addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

(2)(E)4. Enhanced softening. The improved removal of disinfection byproduct precursors by precipitative softening.

(2)(F) Terms beginning with the letter F.

(2)(F)1. Facility. A single tract or contiguous tracts of land and any improvements on them, upon which one (1) or more service connections are located, and which, except for easements and public right-of-way, are wholly owned, leased, or otherwise subject to the control of the customer.

(2)(F)2. Filter profile. 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.

(2)(F)3. Filtration. A process for removing particulate matter from water by passage through porous media.

(2)(F)4. Finished water. Water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except

treatment necessary to maintain water quality in the distribution system (for example, booster disinfection, addition of corrosion control chemicals).

(2)(F)5. Finished water storage facility. A tank, reservoir, or other man-made facility used to store potable water that will undergo no further treatment except residual disinfection.

(2)(F)6. First draw sample. A one (1) liter sample of tap water, collected in accordance with the lead and copper provisions of these rules only, that has been standing in plumbing pipes at least six (6) hours and is collected without flushing the tap.

(2)(F)7. Flocculation. A process to enhance the collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

(2)(F)8. Flowing stream. A course of running water flowing in a definite channel.

(2)(G) Terms beginning with the letter G.

(2)(G)1. GAC10. Granular activated carbon filter beds with an empty-bed contact time of ten (10) minutes based on average daily flow and a carbon reactivation frequency of every one hundred eighty (180) days, except that the reactivation frequency for GAC10 used as a best available technology for compliance with Stage 2 Disinfectants/Disinfection By-Products is one hundred twenty (120) days.

(2)(G)2. GAC20. Granular activated carbon filter beds with an empty-bed contact time of twenty (20) minutes based on average daily flow and a carbon reactivation frequency of every two hundred forty (240) days.

(2)(G)3. Gross alpha particle activity. The total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

(2)(G)4. Gross beta particle activity. The total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

(2)(G)5. Ground water under the direct influence of surface water (GWUDISW). Any water beneath the surface of the ground with either of the following:

(2)(G)A. Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Direct influence must be determined for individual sources in accordance with criteria established by the department. The department's determination of direct influence may be used on site-specific measurements of water quality or documentation of well construction characteristics, or both, and geology with field evaluation; or

(2)(G)B. Significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*.

(2)(H) Terms beginning with the letter H.

(2)(H)1. Haloacetic acids (five) (HAA5). 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 after addition.

(2)(I) Terms beginning with the letter I.

(2)(I)1. Initial Compliance Period. That period beginning January 1, 1993, for existing sources. For new water supply sources, the first full three (3)-year compliance period which begins no more than eighteen (18) months after the source is placed in service.

(2)(I)2. Iron removal. The removal of iron and manganese from a ground water source with the treated water being exposed to aeration and chemical oxidation, pH adjustment, sedimentation and filtration.

(2)(J) Terms beginning with the letter J. (Reserved)

(2)(K) Terms beginning with the letter K. (*Reserved*)

(2)(L) Terms beginning with the letter L.

(2)(L)1. Lake/reservoir. A natural or man-made basin or hollow on the earth's surface in which water collects or is stored that may or may not have a current or single direction of flow.

(2)(L)2. Lead service line. A service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck, or other fitting which is connected to that lead line.

(2)(L)3. *Legionella*. A genus of bacteria some species of which have caused a type of pneumonia called Legionnaires disease.

(2)(L)4. Lime softening. The application of lime to reduce the concentrations of calcium and magnesium and, to a lesser extent, iron, manganese, or radionuclides from source water.

(2)(L)5. Locational running annual average (LRAA). The average of sample analytical results for samples taken at a particular monitoring location during the previous four (4) calendar quarters.

(2)(M) Terms beginning with the letter M.

(2)(M)1. Man-made beta particle and photon emitters. All radionuclides emitting beta particles, photons, or both, except the daughter products of thorium 232, uranium 235, and uranium 238, listed in the EPA Implementation Guidance for Radionuclides, Appendix J.

(2)(M)2. Maximum contaminant level (MCL). The maximum permissible level, as established in 10 CSR 60-4, of a contaminant in any water which is delivered to any user of a public water system.

(2)(M)3. Maximum contaminant level goal (MCLG). A 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. MCLGs are nonenforceable health goals.

(2)(M)4. Maximum residual disinfectant level (MRDL). A level of a disinfectant that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects.

(2)(M)5. Maximum residual disinfectant level goal (MRDLG). The maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

(2)(M)6. Maximum total trihalomethane potential (MTTHMP). The maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after seven (7) days at a temperature of twenty-five degrees Celsius (25° C) or above.

(2)(M)7. Membrane filtration. Pressure or vacuum driven separation process in which particulate matter larger than one (1) micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.

(2)(M)8. Missouri Safe Drinking Water Law. The *Revised Statutes of Missouri*, sections 640.100 through 640.140.

(2)(N) Terms beginning with the letter N.

(2)(N)1. Near the first service connection. At one (1) of the twenty percent (20%) of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.

(2)(N)2. Nontransient noncommunity water system. A public water system that is not a community water system and that regularly serves at least twenty-five (25) of the same persons over six (6) months per year.

(2)(O) Terms beginning with the letter O.

(2)(O)1. On-site inspection. An on-site review of the water source, facilities, equipment, operation, and maintenance of a public water system for the purpose of evaluating the adequacy

of that source, facilities, equipment, operation, and maintenance for producing and distributing safe drinking water.

(2)(O)2. Operator. Any individual who operates or determines the methods of operating a water system, either directly or by order.

(2)(O)3. Optimal corrosion control treatment. For the purpose of the lead and copper provisions of these rules only, means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the water system to violate any other drinking water regulations.

(2)(P) Terms beginning with the letter P.

(2)(P)1. Person. Any individual, partnership, co-partnership, firm, company, public or private corporation, association, homeowners' association, joint stock company, trust, estate, political subdivision or any agency, board, department, or bureau of the state or federal government, or any other legal entity whatever, which is recognized by law as the subject of rights and duties.

(2)(P)2. Picocurie (pCi). The quantity of radioactive material producing 2.22 nuclear transformations per minute.

(2)(P)3. Plant intake. The works or structures at the head of a conduit through which water is diverted from a source (for example, river or lake) into the treatment plant.

(2)(P)4. Point of entry treatment device (POE). A treatment device applied to the drinking water entering a house or other building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

(2)(P)5. Point of use treatment device (POU). A treatment device applied to a single tap for the purpose of reducing contaminants in the drinking water at that tap.

(2)(P)6. Presedimentation. A preliminary treatment process used to remove gravel, sand, and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

(2)(P)7. Primary public water system. A public water system which obtains its source of water directly from a well, infiltration gallery, lake, reservoir, river, spring, or stream.

(2)(P)8. Public water system. A system for the provision to the public of piped water for human consumption, if the system has at least fifteen (15) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The system includes any collection, treatment, storage, or distribution facilities used in connection with the system. A public water system is either a community water system or a noncommunity water system.

(2)(Q) Terms beginning with the letter Q.

(2)(Q)1. Quarterly. Unless otherwise specified in 10 CSR 60, quarterly refers to the calendar quarters, January through March, April through June, July through September, and October through December.

(2)(R) Terms beginning with the letter R.

 $(2)(\mathbf{R})$ 1. Radioactivity. The spontaneous, uncontrollable disintegration of the nucleus of an atom with the emission of particles and rays.

 $(2)(\mathbf{R})$ 2. Rapid mix. The rapid dispersion of chemicals throughout the water to be treated by violent agitation.

 $(2)(\mathbf{R})$ 3. Reduced pressure principle backflow prevention assembly. A device containing two (2) independently acting, internally spring loaded, approved check valves, together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and below the first check valve. The unit shall include properly located test cocks and tightly closing, resilient-seated shut-off valves at each end of the assembly.

(2)(**R**)4. Rem. The unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A millirem (mrem) is one one-thousandth (1/1000) of a rem.

(2)(**R**)5. Repeat compliance period. Any subsequent compliance period after the initial compliance period.

(2)(**R**)6. Residual disinfectant concentration. The "C" in the equation CT. The concentration of disinfectant measured in milligrams per liter (mg/L) in a representative sample of water.

(2)(**R**)7. Rural. Shall not include any area in any city or town which has a population in excess of ten thousand (10,000) inhabitants according to the latest reliable population estimate for purposes of 10 CSR 60-13.010.

(2)(S) Terms beginning with the letter S.

(2)(S)1. Sanitary survey. An on-site engineering inspection and review of a public water systemits supply source(s), treatment of supply source(s), treatment facilities, and distribution system(s), for the purpose of evaluating their adequacy, reliability, and safety for producing and distributing drinking water.

(2)(S)2. Secondary contaminant levels. Those contaminant levels established by the department for contaminants which may affect the taste, odor, color, staining, and scale-forming tendencies of water.

(2)(S)3. Secondary public water system. A public water system which obtains all its water from an approved public water system(s), consists of a water distribution system, and resells the water or is a carrier which conveys passengers in interstate commerce. Parts of a primary public water system may be classified as being a secondary public water system if they meet this definition

and are physically separated from those parts served by the source for the primary public water system.

(2)(S)4. Sedimentation. A process for removal of solids before filtration by gravity separation.

(2)(S)5. Service connection. Any water line or pipe connected to a water distribution main or pipe for the purpose of conveying water to a point of use.

(2)(S)6. Service line sample. A one (1) liter sample of water, collected in accordance with the lead and copper provisions of these rules only, that has been standing for at least six (6) hours in a service line.

(2)(S)7. Single family structure. For the purpose of the lead and copper provisions of these rules only, a building constructed as a single family residence that is currently used as either a residence or a place of business.

(2)(S)8. Subdivision. Any land which is divided or proposed to be divided into fifteen (15) or more lots or tracts, whether contiguous or not, for the purpose of sale, lease, rental, or construction of permanent structures on lots or tracts as part of a common plan; or where subdivided land is offered for sale or lease, or where structures are constructed by a single developer or a group of developers acting in concert and where the lots or land or structures are contiguous or known, designated or advertised as a common unit or by a common name. The lots or land tracts and structures shall be presumed, without regard to the number of lots or dwellings covered by each individual offering, as being offered for sale or lease as part of a common plan.

(2)(S)9. Supplier of water. Any person who owns, controls, or operates a public water system.

(2)(S)10. Surface water. All water which is open to the atmosphere and subject to surface runoff; this includes all tributary streams and drainage basins, natural lakes, and artificial reservoirs above the point of the water supply intake.

(2)(S)11. System with a single service connection. A system which supplies drinking water to consumers via a single service line.

(2)(T) Terms beginning with the letter T.

(2)(T)1. Too numerous to count (TNTC). The total number of bacterial colonies exceeds two hundred (200) on a forty-seven millimeter (47 mm) diameter membrane filter used for coliform detection.

(2)(T)2. Total organic carbon (TOC). Total organic carbon in milligrams per liter (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.

(2)(T)3. Total trihalomethanes (TTHM). The sum of the concentration in mg/l of the trihalomethane compounds, trichloromethane (chloroform), dibromochloromethane,

bromodichloromethane, and tribromomethane (bromoform), rounded to two (2) significant figures.

(2)(T)4. Transient noncommunity water system. A public water system that is not a community water system, which has at least fifteen (15) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days out of the year.

(2)(T)5. Treated water. Water which is handled or processed in any manner to change the physical, chemical, biological, or radiological content and includes water exposed to the atmosphere by aeration.

(2)(T)6. Trihalomethane (THM). One (1) of the family of organic compounds, named as derivatives of methane, where three (3) of the four (4) hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

(2)(T)7. Two (2)-stage lime softening. A process in which chemical addition and hardness precipitation occur in each of two (2) distinct unit clarification processes in series prior to filtration.

(2)(U) Terms beginning with the letter U.

(2)(U)1. Unconsolidated formations. Earth material (sand, gravel, silt, clay) which is uncemented and uncompacted and which has been deposited by a natural process. This material retains loose or relatively soft physical characteristics.

(2)(U)2. Uncovered finished water storage facility. A tank, reservoir, or other facility used to store water that will undergo no further treatment to reduce microbial pathogens except residual disinfection and is directly open to the atmosphere. (Note: uncovered finished water storage facilities are prohibited under 10 CSR 60-4.080(7).)

(2)(V) Terms beginning with the letter V.

(2)(V)1. Virus. A virus of fecal origin which is infectious to humans by waterborne transmission.

(2)(W) Terms beginning with the letter W.

(2)(W)1. Water distribution system. All piping, conduits, valves, hydrants, storage facilities, pumps, and other appurtenances, excluding service connections, which serve to deliver water from a water treatment plant or water supply source to the public.

(2)(W)2. Water system. All sources from which water is derived for drinking or domestic use by the public, also all structures, conduits, and appurtenances by means of which water for use is treated, stored, or delivered to consumers, except service connections from water distribution systems to buildings and plumbing within or in connection with buildings served.

(2)(W)3. Water supply source. All sources of water supply including wells, infiltration galleries, springs, reservoirs, lakes, streams, or rivers from which water is derived for public water systems, including the structures, conduits, pumps, and appurtenances used to withdraw water from the source or to store or transport water to the water treatment facility or water distribution system.

(2)(W)4. Water treatment facility. A facility which uses specific processes such as sedimentation, coagulation, filtration, disinfection, aeration, oxidation, ion exchange, fluoridation, or other processes which serve to add components or to alter or remove contaminants from a water supply source.

(2)(W)5. Waterborne disease outbreak. The significant occurrence of acute infectious illness associated with the ingestion of water as declared by the Department of Health and Senior Services.

(2)(W)6. Wholesale system. A public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one (1) or more consecutive systems.

10 CSR 60-3 Chapter 3--Permits

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10 CSR 60-3.010 Construction Authorization, Final Approval Of Construction, Owner-Supervised Program And Permit To Dispense Water

PURPOSE: This rule sets out criteria for acquisition and revocation of a permit to dispense water to the public, including submission of predesign studies and plans and specifications, system operation and reliability of the system.

Editor's Note: The secretary of state has determined that the publication of this rule in its entirety would be unduly cumbersome or expensive. The entire text of the rule has been filed with the secretary of state and may be found at the headquarters of the agency. It is available to any interested person at a cost established by state law.

(1) Community Water System Requirements.

(1)(A) Written Construction Authorization. A supplier of water which operates a community water system must obtain written authorization from the department prior to construction, alteration or extension of any community water system, unless the project will be constructed under the provisions of 10 CSR 60-10.010(2)(C)2, and, for community water systems commencing operation after October 1, 1999, must comply with the requirements of 10 CSR 60-3.020 and 10 CSR 60-3.030.

(1)(A)1. Two (2) copies of predesign studies pertaining to the project must be submitted to the department before plans and specifications for new water systems or for significant changes to existing water systems are reviewed for approval.

(1)(A)2. Construction authorization shall be requested by submitting written application and two (2) copies of the plans and specifications, as outlined in 10 CSR 60-10.010(2), for the proposed project to the department for review and approval.

(1)(A)3. Preparation of engineering reports, plans and specifications for community water systems and inspection of construction for the purpose of assuring compliance with drawings and specifications must be done by an engineer as defined by 10 CSR 60-2.015(2)(E)2.

(1)(A)4. A construction authorization shall be valid for a period of two (2) years from the date of authorization. If construction is not commenced within two (2) years from the date of authorization, a new construction authorization must be obtained from the department.

(1)(B) Final Construction Approval. Final construction approval must be obtained from the department for all projects for which approval is required before that project is placed into service. A supplier of water which operates a community water system need not obtain construction approval for projects constructed under the provisions of 10 CSR 60-10.010(2)(C)2.

(1)(C) Supervised Construction Program. A supplier of water which operates a community water system may establish a supervised construction program as specified in 10 CSR 60-10.010(2)(C)2.

(1)(D) Permit to Dispense. Except as exempted in subsection (3)(A) of this rule, no water may be dispensed or be made available to the public by any person without first applying for in writing and receiving a permit to dispense water. The department shall issue permits to dispense water to community water systems under the following terms and conditions:

(1)(D)1. A supplier of water establishing a new community water system must, in order to obtain a permit to dispense water--

(1)(D)1.A. Comply with the requirements of <u>10 CSR 60-10.010</u>;

(1)(D)1.B. Present evidence of the ability to produce water meeting applicable maximum contaminant levels;

(1)(D)1.C. Present evidence of reliable water system operation, consistent with the type of treatment and the degree of automatic control provided;

(1)(D)1.D. Complete an emergency operating plan as described in 10 CSR 60-12.010; and

(1)(D)1.E. For community water systems commencing operation after October 1, 1999, provide proof of continuing operating authority as set forth under 10 CSR 60-3.020 and meet the technical, managerial and financial capacity requirements of 10 CSR 60-3.030; and

(1)(D)2. A supplier of water which operates an existing community water supply not holding a valid permit to dispense water is operating in violation of the Missouri drinking water statutes and regulations and must apply to the department in writing for a permit. Water suppliers in this category must--

(1)(D)2.A. Present evidence to the department of the ability to produce water meeting applicable maximum contaminant levels;

(1)(D)2.B. Present evidence of reliable water system operation, consistent with the type of treatment and the degree of automatic control provided;

(1)(D)2.C. Submit, in duplicate, certified plans and specifications describing the water source, any treatment facilities and the distribution system to the department. Certification must be either by the engineer preparing the information or if prepared by the owner, be a properly notarized affidavit;

(1)(D)2.D. Provide disinfection with an effective contact time for wells used as a source of supply which were constructed prior to October 1, 1979, and which do not meet community water system construction criteria or where construction cannot be verified by the owner; and

(1)(D)2.E. Complete an emergency operating plan as described in <u>10 CSR 60-12.010</u>.

(2) Noncommunity Water System Requirements.

(2)(A) Permit to Dispense. Except as exempted in subsection (3)(A) of this rule, a supplier of water which operates a noncommunity water system must apply in writing to the department for a permit to dispense water to the public. Noncommunity public water systems must present evidence to the department of--

(2)(A)1. The ability to produce water meeting applicable maximum contaminant levels;

(2)(A)2. Reliable water system operation, consistent with the type of treatment and the degree of automatic control provided; and

(2)(A)3. For nontransient noncommunity water systems commencing operation after October 1, 1999, continuing operating authority meeting the requirements of 10 CSR 60-3.020 and technical, managerial and financial capacity meeting the requirements of 10 CSR 60-3.030.

(2)(B) Construction Authorization. Each noncommunity supplier of water must notify the department, in advance, of the intent to construct a new or expand an existing water system.

(2)(B)1. Noncommunity water systems utilizing surface or ground water under the direct influence of surface water and nontransient noncommunity water systems must obtain written authorization from the department prior to construction, alteration or extension of the system and must comply with 10 CSR 60-3.020 and 10 CSR 60-3.030.

(2)(B)2. Transient noncommunity water systems utilizing groundwater--

(2)(B)2.A. May be required, at the discretion of the department, to submit plans and specifications for approval;

(2)(B)2.B. Shall be constructed in accordance with the department's "Standards for Non-Community Public Water Supplies, 1982"; and

(2)(B)2.C. Must file with the department, within sixty (60) days of completion, a record of construction for all new or modified wells on forms provided by the department.

(3) Permits to Dispense Water.

(**3**)(A) Applicability.

(3)(A)1. A water supply meeting all the following conditions is not considered a public water system and as such, is not required to have a permit to dispense if that water supply:

(3)(A)1.A. Consists only of distribution and storage facilities;

(3)(A)1.B. Obtains all of its water from, but is not owned or operated by a public water system to which the regulations apply;

(3)(A)1.C. Does not sell water to any person; and

(3)(A)1.D. Is not a carrier which conveys passengers in interstate commerce.

(3)(A)2. Water systems serving subdivisions as defined in 10 CSR 60-2.015(2)(S)8. are public water systems and must have a permit to dispense water.

(3)(A)3. Community and noncommunity water systems except as exempted in paragraph (3)(A)1. of this rule must have a permit to dispense water.

(3)(B) Modification or Revocation of a Permit to Dispense. The department may modify or revoke a permit to dispense water, subject to the appeal provisions of section 640.130.5., RSMo, upon a finding that any of the following have occurred:

(3)(B)1. The holder of a permit ceases to function as a public water supply;

(3)(B)2. The holder of a permit fails to correct an operating deficiency or comply with these regulations within a reasonable time after receipt of notice from the department;

(3)(B)3. The department determines that an emergency condition exists in a water supply which endangers, or could be expected to endanger, the health of a person(s) consuming affected water;

(3)(B)4. The public water system changes ownership and the continuing operating authority, as defined in 10 CSR 60-3.020, fails to meet the requirements of 10 CSR 60-3.020; or

(3)(B)5. For community water systems and nontransient noncommunity water systems against which an administrative order has been issued for significant noncompliance with the federal or state drinking water law or regulations, the water system fails to show that a permanent organization exists that serves as the continuing operating authority and that the continuing operating authority has the necessary technical, managerial, and financial capability for the management, operation, replacement, maintenance, and modernization of the public water system, or the water system is not making substantial progress toward compliance. The continuing operating authority may reapply for a permit to dispense when the compliance issues are resolved.

10 CSR 60-3.020 Continuing Operating Authority

PURPOSE: This rule establishes continuing operating authority requirements for public water systems.

(1) Applicability. This rule applies to--

(1)(A) Public water systems commencing operation after October 1, 1999;

(1)(B) Public water systems changing ownership; and

(1)(C) Community water systems and nontransient noncommunity water systems in significant noncompliance.

(2) Definitions.

(2)(A) The terms and definitions in <u>10 CSR 60-2.015</u> apply to this rule.

(2)(B) Continuing operating authority means the permanent organization, entity or person identified on the permit to dispense water who is responsible for the management, operation, replacement, maintenance and modernization of the public water system in compliance with the Missouri Safe Drinking Water Law and rules.

(3) Public Water Systems Commencing Operation After October 1, 1999. Owners/operators of public water systems applying for written construction authorizations or permits to dispense water, or both, shall show in accordance with section (6) of this rule, as part of their application, that a permanent organization exists which will serve as the continuing operating authority for

the management, operation, replacement, maintenance and modernization of the facility for which the application is made. The department will not issue written construction authorizations and permits to dispense unless the applicant provides proof satisfactory to the department that a continuing operating authority exists that shall have jurisdiction over the facility. Written construction authorizations and permits to dispense water will be issued to the continuing operating authority. The permit shall be valid only for the continuing operating authority to which the permit is issued.

(4) Permit Review Upon Change in Ownership.

(4)(A) Prior to a change of continuing operating authority, the current continuing operating authority shall notify the department of the pending change at least ninety (90) calendar days prior to ownership transfer. The department will perform a permit review within forty-five (45) calendar days of notice of the ownership transfer to assess the following:

(4)(A)1. The proposed continuing operating authority meets the continuing operating authority requirements of this rule;

(4)(A)2. The public water system is in compliance with applicable maximum contaminant levels and monitoring requirements of 10 CSR 60-4.010 through 10 CSR 60-4.110; and

(4)(A)3. The public water system is in compliance with the minimum positive pressure requirement of 10 CSR 60-4.080(9).

(4)(B) The permit to dispense water shall continue in effect until the department takes an action to issue a permit to the proposed new continuing operating authority under subparagraphs (3)(C) 2.A. or B. of this rule or to deny the permit to the proposed new continuing operating authority under subparagraph (3)(C)2.C. of this rule.

(4)(B)1. If the review shows that the proposed continuing operating authority and public water system meet all requirements in subsection (4)(A), the department will issue a new permit to dispense when ownership transfer is complete showing the new owner as the continuing operation authority responsible for the management, operation, replacement, maintenance and modernization of the public water system in compliance with the Missouri Safe Drinking Water Law and rules.

(4)(B)2. If the review shows the new continuing operating authority meets the requirement in paragraph (4)(A)1, but the public water system does not meet the requirements in paragraphs (4)(A)2 and 3, the department will negotiate an agreement with the proposed continuing operating authority for achieving compliance with these requirements. Upon completion of the agreement and when ownership transfer is complete, the department will issue a new permit to dispense water to the new continuing operating authority.

(4)(B)3. If the review shows the proposed continuing operating authority does not meet the requirement in paragraph (4)(A)1, the permit to dispense water will be denied.

(5) Requirements for Community Water Systems and Nontransient Noncommunity Water Systems in Significant Noncompliance.

(5)(A) Any community public water system or nontransient noncommunity public water system against which an administrative order has been issued for significant noncompliance with the federal Safe Drinking Water Act as amended or sections 640.100-640.140, RSMo or federal or state rules promulgated thereunder shall show that--

(5)(A)1. A permanent organization exists that serves as the water system's continuing operating authority; and

(5)(A)2. The continuing operating authority has the necessary technical, managerial, and financial capability for the management, operation, replacement, maintenance, and modernization of the public water system.

(5)(B) If the public water system cannot show that such continuing operating authority exists, or if the public water system is not making substantial progress toward compliance with the administrative order, the public water system's technical, managerial and financial capacity will be reviewed and the permit to dispense may be revoked. The continuing operating authority may reapply for a permit to dispense when the compliance issues identified in the administrative order are resolved.

(6) Continuing Operating Authorities.

(6)(A) Continuing operating authorities to whom the department will issue written construction authorizations under section (3) of this rule and permits to dispense water are listed here in preferential order. An applicant proposing a facility within the legal boundaries of an existing higher preference continuing operating authority may utilize a lower preference continuing operating authority by submitting, as part of the application, documentation that water service is not available from each existing higher preference continuing operating authority, or a statement from each existing higher preference continuing operating authority waiving its preferential status.

(6)(A)1. Municipality, public water supply district, and water system regulated by the Missouri Public Service Commission (PSC). (Note: Written construction authorizations and permits to dispense water will not be issued to a continuing operating authority regulated by the PSC until the continuing operating authority has obtained a certificate of convenience and necessity from the PSC.)

(6)(A)2. Any person showing complete control over and responsibility for the public water system and all property served by it.

(6)(A)3. Any incorporated association of property owners served by a public water system provided that--

(6)(A)3.A. The incorporated association owns the facility and has authority to lay all necessary water lines;

(6)(A)3.B. All property owners within the boundaries of the association have adopted covenants covering the land of each property owner, which assure connection to the system when it is available and compliance with the bylaws and rules of the association;

(6)(A)3.C. The bylaws of the association, or other appropriate documents, provide for the proper management, operation, replacement, maintenance, and modernization of the facility including at a minimum:

(6)(A)3.C.(I) The power to regulate the use of the facility;

(6)(A)3.C.(II) The power to levy assessments on its members and enforce these assessments on each owner; and

(6)(A)3.C.(III) The power to convey the facility to one (1) of the continuing operating authorities listed in subsection (5)(A) of this rule;

(6)(A)3.D. The documents establishing the continuing operating authority and the covenants called for in subparagraph (6)(A)3.B. of this rule shall be properly recorded with the recorder of deeds in the county or counties where the land within the boundaries of the association lies and a certified copy of the recorded document shall be provided to the department. Additionally, a current title search certified by a title insurance company authorized to do business in Missouri showing the owners of record of all real estate within the boundaries of the association and all lienholders must be provided to the department; all lienholders must subordinate their interest to the covenants; and

(6)(A)3.E. The association is incorporated as a corporation under the laws of the state of Missouri and a current Certificate of Good Standing from the Missouri secretary of state and a certified copy of the Articles of Incorporation are provided to the department.

(6)(B) The term "available" as used in subsection (6)(A) of this rule shall mean the water system's distribution line is located within a reasonable distance of the potential water customer; the water system will be accessible in a timely manner that will not cause a hardship on the potential water customer; and the water service will be provided at reasonable cost.

(7) Continuing Operating Authority Responsibilities. To ensure the dispensing of safe and adequate supplies of drinking water to its customers, the continuing operating authority for each public water system shall be responsible for all necessary: source withdrawal facilities, treatment facilities, and/or distribution facilities which the public water system owns or leases. The continuing operation authority shall have such valid lease agreements, contracts and properly recorded easements, as necessary, to allow access for new construction, repair, replacement, maintenance, and operation of all facilities.

(8) Private Water Corporations. Private corporations which are not incorporated under the laws of the state of Missouri shall be represented by a registered agent in the state of Missouri before a written authorization to construct or a permit to dispense water will be issued by the department.

10 CSR 60-3.030 Technical, Managerial, And Financial Capacity

PURPOSE: This rule establishes minimum technical, managerial and financial capacity requirements for community and nontransient noncommunity water systems commencing operation after October 1, 1999. The rule also includes technical and financial capacity recommendations.

(1) Applicability. This rule applies to community and nontransient noncommunity water systems commencing operation after October 1, 1999.

(2) General Requirements.

(2)(A) Community and nontransient noncommunity water systems commencing operation after October 1, 1999, shall show, as part of their permit application, that the public water system will meet the requirements of this rule. The department will not issue a permit to dispense water until requirements of this rule are met.

(2)(B) Public water systems commencing operation after October 1, 1999 shall show as part of their application that the public water system will meet the minimum technical, managerial, and financial capacity requirements of this rule. The department will not issue a written construction authorization until it determines that the proposed water system will meet the requirements of this rule.

(2)(C) Community and nontransient noncommunity water systems shall maintain compliance with this rule and shall provide the department with information during sanitary surveys and upon written request for the department's use in assessing their compliance with this rule.

(2)(D) Community and nontransient noncommunity water systems subject to this rule shall consider and plan for the potential impact of future regulations on their technical, managerial and financial capacity.

(3) Minimum Technical, Managerial, and Financial Capacity Requirements.

(3)(A) Minimum Technical Capacity Requirements.

(3)(A)1. All community water systems subject to this rule must conform to the department's "Standards for Community Public Water Supplies."

(3)(A)2. All nontransient noncommunity water systems subject to this rule must conform to the department's "Standards for Non-Community Public Water Supplies."

(3)(A)3. All public water systems subject to this rule shall have a sufficient number of operators certified as required in 10 CSR 60-14 to provide proper operation and maintenance of all source, treatment, storage, and distribution facilities so that the public water system meets all requirements of sections 640.100-640.140, RSMo and regulations promulgated thereunder. These operators shall be properly trained and be provided all equipment needed, including safety equipment, to perform all tasks in their job duties.

(3)(A)4. All public water systems subject to this rule shall have and maintain an updated distribution system map showing, at a minimum, the size and location of all waterlines, valves, hydrants, storage facilities, pumping facilities, treatment facilities, and water sources and shall make the map available to the department on request.

(3)(B) Minimum Managerial Capacity Requirements.

(3)(B)1. Community and nontransient noncommunity water systems subject to this rule shall have an organization chart that shows every position that provides any drinking water function with the position title, name, business address, and telephone number of the person filling that position. This chart shall show clear lines of authority and supervision. Elected officials and managers that have overall jurisdiction shall also be shown on this chart. The chart shall state the name(s) of the persons or legal entity who own the public water system along with the business address and telephone number of the owner(s). This chart shall be publicly displayed and shall be updated within thirty (30) calendar days of any changes. An updated copy of the organization chart shall be made available to the department.

(3)(B)2. Community and nontransient noncommunity water systems subject to this rule shall designate a person or persons who will receive customer complaints and shall have a written procedure for receiving, investigating, resolving, and recording customer complaints. The name, title, business address, business telephone number and office hours of the person(s) designated to receive complaints shall be publicly displayed, along with the written complaint procedure. Complaint records shall be kept for a minimum of five (5) years and shall be made available to the department upon request. Results of investigations shall be used as part of the planning process for future improvements.

(3)(B)3. Community and nontransient noncommunity water systems subject to this rule shall have a written rate structure and service fees, and the rate structure and service fees shall be publicly displayed and shall be made available to the department upon request.

(3)(B)4. Community and nontransient noncommunity water systems subject to this rule shall hold at least one (1) public meeting prior to changing the rate structure or service fees and shall notify the customers in advance of the public meeting by posting notice in the principal business office and providing notice in the area served, unless the rate increase procedure is regulated by other state or federal regulations. Records of customers' notice and summary of the public meeting shall be kept for a minimum of five (5) years and shall be made available to the department upon request.

(3)(B)5. Community and nontransient noncommunity water systems subject to this rule shall designate a person to deal with compliance-related issues in accordance with the public drinking water regulations in 10 CSR 60, including reporting and public notice requirements. This person shall be trained in public drinking water regulation requirements and shall act as liaison with the department on drinking water issues. The department will refer compliance actions to this person. The name, position title, business address, business telephone number, and office hours for this person shall be made available to the department and the department shall be notified within thirty (30) calendar days of any change.

(3)(C) Minimum Financial Capacity Requirements.

(3)(C)1. Community and nontransient noncommunity water systems subject to this rule shall adhere to standard accounting practices in accordance with the Generally Accepted Accounting Principles and Practices, or the National Association of Regulated Utility Companies Uniform System of Accounts, as appropriate.

(3)(C)2. Community and nontransient noncommunity water systems subject to this rule shall develop and implement a system of collection of water fees that includes disconnection of service for nonpayment or other measures for obtaining payment. The total of uncollected fees and the percentage of uncollected fees compared to sum of collected and uncollected fees shall be recorded monthly. These records shall be made available to the department upon request.

(3)(C)3. Community and nontransient noncommunity water systems subject to this rule shall develop an annual budget showing public water system revenues and expenditures, shall prepare a report at the end of each fiscal year showing public water system revenues and expenditures for that year and a comparison with the annual budget prepared for that year, and shall prepare a five (5)-year capital improvement budget and capital improvement plan that will be updated annually. The capital improvement plan shall include the potential financial impacts of future regulations. These records shall be kept for a minimum of ten (10) years and shall be made available to the department upon request.

(3)(C)4. Annual revenues shall cover all public water system costs for the system including operating costs, maintenance costs, debt service costs, operating reserves, debt service reserves, emergency equipment replacement reserves, and revenue collection costs.

(3)(C)5. Community and nontransient noncommunity water systems subject to this rule and not subject to state regulation of rates for water service, in addition to all other financial capacity requirements, shall have and maintain--

(3)(C)5.A. An operating reserve equal to or greater than one-tenth (1/10) of the annual operations and maintenance budget. The public water system must establish this reserve in at least annual payments not to exceed ten (10) years. Funds from the operating reserve shall be used for operating and maintenance expenses only and shall be replaced within ten (10) years from the date of use. This reserve shall be invested in an account with ready access to the funds. Records of this reserve shall be made available to the department upon request. Other private, state, or federal reserves may be applied to meet this requirement;

(3)(C)5.B. An emergency equipment replacement reserve equal to or greater than the replacement cost of the most expensive mechanical equipment item needed for operation. The public water system must establish this reserve in at least annual payments over a minimum of ten (10) years. Funds from the reserve shall be used for emergency equipment replacement expenses only and any funds so used shall be replaced within ten (10) years from the date of use. This reserve shall be invested in an account with ready access to the funds. Records of this reserve shall be made available to the department upon request. Other private, state, or federal reserves may be applied to meet this requirement; and

(3)(C)5.C. If there is debt on the public water system facilities, a debt service reserve no less than ten percent (10%) of the principle and interest or the amount required in the bonding agreement. Funds from the debt service reserve shall be used only for debt service expenses and for purposes agreed to in the bonding agreement and shall be replaced no less than as required in the bonding agreement. Records of this reserve shall be made available to the department upon request.

(4) Recommendations. This section includes recommendations for further enhancing managerial and financial capacity. These recommendations will not be used to determine if minimum regulatory requirements are met for issuance of permits to dispense water.

(4)(A) Managerial capacity recommendations include the following:

(4)(A)1. All public water systems should designate a person to be liaison with other public water systems and officials of entities that may impact drinking water systems. This person should be trained in water resource planning and general public drinking water system issues; and

(4)(A)2. All public water systems should have management with sufficient expertise to ensure that all public drinking water facilities are properly operated, maintained and in compliance with department regulations; improvements needed for future population and commercial growth are properly planned and that these plans are financed and executed; all personnel providing drinking water functions continue to be trained to achieve professional expertise in their field; the personnel are organized and motivated to provide good customer service, good interaction with the department and other regulatory agencies, good interaction with other regional water systems and water users including participating in long-term strategic planning for management of regional water resources; and that the supply finances are fiscally sound.

(4)(B) Financial capacity recommendations include the following:

(4)(B)1. Revenues from drinking water sales should cover all public water system costs for the system including operating costs, maintenance costs, debt service costs, operating reserves, debt reserves, emergency equipment replacement reserves, and revenue collection costs. Capital improvement funding for facilities needed for upgrading the existing system should come from revenue from water sales or other sources of capital. Rates should be set accordingly;

(4)(B)2. New connection fees, development fees, and other funding sources should cover all public water supply capital improvements costs for facilities needed for expanding the system for new customers. Fees should be set accordingly; and

(4)(B)3. All drinking water generated revenues should be used for drinking water purposes. For public water systems owned by entities that provide other services in addition to drinking water, drinking water purposes should include equitable share of administrative costs for the entire entity.

10 CSR 60-4 Chapter 4--Contaminant Levels And Monitoring

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10 CSR 60-4.010 Maximum Contaminant Levels And Monitoring Requirements

PURPOSE: This rule establishes sampling and monitoring requirements for public water systems and criteria for significant defiencies at surface water systems.

(1) The rules in this chapter contain maximum contaminant levels (MCLs) permissible in public water systems and describe associated monitoring requirements. A supplier of water must collect or have collected samples of the water and shall provide for analysis of these samples for designated contaminants. Nothing in this chapter shall preclude a duly designated representative of the department from taking samples or from using the results from the samples to determine compliance by a supplier of water with applicable provisions of these rules.

(2) Laboratory services required by this chapter to determine contaminant levels are available from the Department of Natural Resources (DNR) or the Department of Health according to the fee schedule set out in 10 CSR 60-16.030.

(2)(A) Samples must be collected at no less than the required frequency and in accordance with schedules established by the department when samples are submitted to the DNR or the Department of Health laboratory for analysis.

(2)(B) A supplier of water which submits samples to the DNR or the Department of Health laboratory must collect and submit samples using containers provided by the department in accordance with the instructions enclosed.

(2)(C) A supplier of water not using the DNR or the Department of Health laboratory must have the analysis done by a laboratory certified by the department.

(3) Samples taken to determine compliance with the requirements of this chapter shall be taken at representative points of the public water system, as approved by the department. The supplier of water shall provide satisfactory sampling taps. Samples for microbiological analysis must be received in the laboratory for analysis within thirty (30) hours of collection.

(4) All analytical results must be accurate to at least the same number of significant figures as the applicable MCL.

(5) All analyses must be consistent with the methods and procedures described in 10 CSR 60-5.010 and 10 CSR 60-5.020. The results of all analyses must be used to determine compliance

with the MCLs unless the analytical results are invalidated for technical reasons, such as obvious sampling errors.

(6) When a public water supply system supplies water to one (1) or more other public water supply systems, the department may modify the monitoring requirements imposed by these rules to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes. Any modified monitoring must be conducted pursuant to a schedule specified by the department.

(7) Inspections and Sanitary Surveys of Surface Water Systems.

(7)(A) Sanitary surveys of all surface water systems and systems using groundwater under the direct influence of surface water will be conducted at least every three (3) years for community systems and every five (5) years for noncommunity systems. Sanitary survey as used in this section (7) means an on-site review, under the supervision of an engineer, of the water source (identifying its sources of contamination using the results of source water assessments where available), facilities, equipment, operation, maintenance, and monitoring compliance, in order to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water. It also includes a review of the disinfection profile for systems that are required to comply with disinfection profiling requirements.

(7)(B) For community water systems determined by the department to have no significant deficiencies (for example, defects or inadequacies that increase risk from waterborne disease, such as deficiencies involving the removal, inactivation or reintroduction of pathogens or prevention or removal of chemical contamination) in two (2) consecutive sanitary surveys, the frequency of sanitary surveys may be decreased to once every five (5) years. Upon finding a significant deficiency, the department may return the community water system to the three (3)-year schedule.

(7)(C) Public water systems must respond in writing to significant deficiencies outlined in sanitary survey reports no later than forty-five (45) days after receipt of the report. The response must indicate how and on what schedule the system will address significant deficiencies noted in the survey. Failure to respond within forty-five (45) days is a violation. Public water systems shall take necessary steps to address significant deficiencies identified in sanitary survey reports if such deficiencies are within the control of the public water system and its governing body.

(7)(D) The department, at its discretion, may conduct routine inspections of any public water system or make other necessary inspections to determine compliance with these rules. If, after investigation, the department finds that any public water system is incompetently supervised, improperly operated, inadequate, of defective design or if the water fails to meet standards established in 10 CSR 60, the water supplier must implement changes that may be required by the department.

(8) The provisions of this rule are declared severable. If any fee fixed by this rule is held invalid by a court of competent jurisdiction or by the Administrative Hearing Commission, the

remaining provisions of this rule shall remain in full force and effect, unless otherwise determined by a court of competent jurisdiction or by the Administrative Hearing Commission.

10 CSR 60-4.020 Maximum Microbiological Contaminant Levels And Monitoring Requirements

PURPOSE: This rule establishes maximum contaminant levels and monitoring requirements for microbiological contaminants.

(1) Routine Monitoring.

(1)(A) Public water systems must collect total coliform samples according to a written sample siting plan at sites which are representative of water throughout the distribution system. This plan shall be made available to the inspector conducting a sanitary survey or on-site inspection, or to the department upon request and the department will either approve or recommend improvements.

(1)(A)1. All routine samples should be taken from the distribution system.

(1)(A)2. Distribution sampling points should be chosen where both upstream and downstream repeat samples can be taken within five (5) service connections of the principal sampling point. The same distribution points may be used each month, but there must be a separate point for each distribution sample collected each day.

(1)(A)3. Groundwater supplies collecting five (5) or fewer samples per month may collect all samples on the same day, with department approval; provided, that the samples are all collected from different points. Other supplies shall collect samples at regular intervals throughout the month.

(1)(A)4. Groundwater supplies under the direct influence of surface water that do not practice filtration must identify a sample point near the first service connection which is one (1) of 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.

(1)(A)5. Supplies should identify at least five (5) sampling taps since these are needed for five (5) routine samples in the month following an unsafe sample.

(1)(B) The monitoring frequency for total coliforms for community water systems is based on the population served by the system as follows except that systems utilizing surface or ground water under the direct influence of surface water and systems practicing iron removal or lime softening must collect at least five (5) samples per month. In addition, the department may require a greater frequency if necessary:

Total Coliform Monitoring Frequency for Community Water Systems

Population Served	Minimum Samples Per Month
251000*	1
10012500	2
25013300	3
33014100	4
41014900	5
49015800	б
58016700	7
67017600	8
76018500	9
850112,900	10
12,90117,200	15
17,20121,500	20
21,50125,000	25
25,00133,000	30
33,00141,000	40
41,00150,000	50
50,00159,000	60
59,00170,000	70
70,00183,000	80
83,00196,000	90
96,001130,000	100
130,001220,000	120
220,001320,000	150
320,001450,000	180
450,000600,000	210
600,001780,000	240
780,001970,000	270
970,0011,230,000	300
1,230,0011,520,000	330
1,520,0011,850,000	360
1,850,001-2,270,000	390
2,270,001 - 3,020,000	420
3,020,0013,960,000	450
3,960,001more	480

* Includes public water systems which have at least fifteen (15) service connections but serve fewer than twenty-five (25) persons.

(1)(C) The monitoring frequency for total coliforms for noncommunity water systems is as follows, except that the department may require a greater frequency:

(1)(C)1. A noncommunity water system using only groundwater (except groundwater under the direct influence of surface water) and serving one thousand (1,000) persons or fewer per day must monitor each calendar quarter that the system provides water to the public, except that the department may reduce this monitoring frequency, in writing, if a sanitary survey or on-site inspection shows that the system is free of sanitary defects. Beginning June 29, 1994, the department cannot reduce the monitoring frequency for a noncommunity water system using only groundwater (except groundwater under the direct influence of surface water) and serving one thousand (1,000) persons or fewer per day to less than once per year;

(1)(C)2. A noncommunity water system using only groundwater (except groundwater under the direct influence of surface water) and serving more than one thousand (1,000) persons per day during any month must monitor at the same frequency as a like-sized community water system, as specified in subsection (1)(B) of this rule, except that the department may reduce this monitoring frequency, in writing, for any month the system serves less than one thousand (<1,000) persons per day. The department cannot reduce the monitoring frequency to less than once per year. For systems using groundwater under the direct influence of surface water, paragraph (1)(C)4. of this rule applies.

(1)(C)3. A noncommunity water system using surface water, in total or in part, must monitor at the same frequency as a like-sized community water system that uses surface water, as specified in subsection (1)(B) of this rule; and

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

(1)(D) The public water system must collect samples ar regular time intervals throughout the monitoring period, except that a system which uses groundwater (except groundwater under the direct influence of surface water) and serves four thousand nine hundred (4900) persons or fewer, may collect, with departmental approval, all samples on a single day if they are taken from different sites.

(1)(E) A public water system that uses groundwater under the direct influence of surface water and does not practice filtration must collect at least one (1) sample near the first service connection each day the turbidity level of the source water, measured as specified in <u>10 CSR 60-</u> <u>5.010(1)</u>, exceeds one (1) nephelometric turbidity units (NTU). This sample must be analyzed for the presence of total coliforms. When one (1) or more turbidity measurements in any day exceeds one (1) NTU, the system must collect this coliform sample within twenty-four (24) hours of the exceedance unless the department determines that the system, for logistical reasons outside its control, cannot have the sample analyzed within thirty (30) hours of collection. Sample results from this coliform monitoring must be included in determining compliance with the maximum contaminant levels (MCLs) for total coliforms in section (7) of this rule.

(1)(F) Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement or repair, shall not be used to determine compliance with MCL for total coliforms in section (7) of this rule. Repeat samples taken pursuant to section (2) of this rule are not considered special purpose samples and must be used to determine compliance with the MCL for total coliforms in section (7) of this rule.

(2) Repeat Monitoring.

(2)(A) If a routine sample is total coliform positive, the public water system must collect a set of repeat samples within twenty-four (24) hours of being notified of the positive result. The

department may extend the twenty-four (24) hour limit on a case-by-case basis if the system has a logistical problem in collecting repeat samples that is beyond its control. In the case of an extension, the department must specify how much time the system has to collect the repeat samples. A system which collects more than one (1) routine sample per month must collect no fewer than three (3) repeat samples for each total coliform-positive sample found. A system which collects one (1) routine sample per month or fewer must collect no fewer than four (4) repeat samples for each total coliform-positive sample found.

(2)(B) The system must 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 (1) repeat sample at a tap within five (5) service connections downstream of the original sampling site. If a total coliform-positive is at the end of the distribution system, or one (1) away from the end of the distribution system, the department may waive the requirement to collect at least one (1) repeat sample upstream or downstream of the original sampling site except that the total number of repeat samples shall not be reduced.

(2)(C) The system must 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 (4)-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 four hundred milliliters (400 ml) (three hundred milliliters (300 ml) for systems which collect more than one (1) routine sample per month). Systems with more than one (1) service connection, but fewer service connections than the required number of repeat samples, shall collect repeat samples as directed by the department.

(2)(D) If one (1) or more repeat samples in the set is total coliform-positive, the public water system must collect an additional set of repeat samples in the manner specified in subsections (2)(A)--(C) of this rule. The additional samples must be collected within twenty-four (24) hours of being notified of the positive result, unless the department extends the limit as provided in subsection (2)(A) of this rule. The system must repeat this process until either total coliforms are not detected in one (1) complete set of repeat samples or the system determines that the MCL for total coliforms in section (7) of this rule has been exceeded and notifies the department.

(2)(E) 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) under section (3) of this rule, it must collect at least five (5) routine samples during the next month the system provides water to the public, except that the department may waive this requirement if the following conditions are met (the department cannot waive the requirement for a system to collect repeat samples in subsections (2)(A)--(D) of this rule):

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

(2)(E)2. The department may waive the requirement to collect five (5) routine samples the next month the system provides water to the public if the department has determined why the sample was total coliform-positive and establishes that the system has corrected the problem or will correct the problem before the end of the next month the system serves water to the public. In this case, the department must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the department official who recommends the decision, and make this document available to the Environmental Protection Agency and the public upon request. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken, or will take, to correct this problem. The department cannot waive the requirement to collect five (5) routine samples the next month the system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. Under this paragraph, a system must still take at least one (1) routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms in section (7) of this rule, unless the department has determined that the system has corrected the contamination problem before the system took the set of repeat samples required in subsections (2)(A)--(D) of this rule and all repeat samples were total coliform-negative.

(2)(F) After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(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 samples(s) as a repeat sample instead of as a routine sample.

(2)(G) Results of all routine and repeat samples not invalidated by the department must be included in determining compliance with the MCL for total coliforms in section (7) of this rule.

(3) Invalidation of Total Coliform Samples. A total coliform-positive sample invalidated under this section does not count towards meeting the minimum monitoring requirements of this rule.

(3)(A) The department may invalidate a total coliform-positive sample only if any one (1) of the following conditions is met:

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

(3)(A)2. The department, on the basis of the results of repeat samples collected as required by subsections (2)(A)--(D) of this rule, determines that the total coliform-positive sample resulted from a domestic or other nondistribution system plumbing problem. The department cannot invalidate a sample on the basis of repeat sample results unless all repeat samples collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected within five (5) service connections of the original tap are total coliform-

negative (that is, the department cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative or if the public water system has only one (1) service connection); and

(3)(A)3. The department has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required in subsections (2)(A)--(D) of this rule and then use them to determine compliance with the MCL for total coliforms in section (7) of this rule. To invalidate a total coliform-positive sample under this section, the decision with the rationale for the decision must be documented in writing, and approved and signed by the supervisor of the department official who recommended the decision. The department must make this document available to the EPA and to the public upon request. The written documentation must state the specific cause of the total coliform-positive sample and what action the system has taken, or will take, to correct this problem. The department may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

(3)(B) A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (that is, the multiple-tube fermentation (MTF) technique), produces a turbid culture in the absence or an acid reaction in the presence-absence (P-A) coliform test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (that is, membrane filter technique (MTF)). When a laboratory invalidates a sample because of this interference, the system must collect another sample from the same location as the original sample within twenty-four (24) hours of being notified of the invalidation and have it analyzed for the presence of total coliform. The system must continue to resample within twenty-four (24) hours and have the samples analyzed until it obtains a valid result. The department may extend the twenty-four (24)-hour limit on a case-by-case basis if the system has a logistical problem in collecting the sample that is beyond its control. In the case of an extension, the department must specify how much time the system has to collect the replacement samples.

(4) Sanitary Surveys.

(4)(A) Public water systems which do not collect five (5) or more routine samples per month must undergo an initial sanitary survey or on-site inspection by June 29, 1994, for community public water systems and June 29, 1999, for noncommunity water systems. After that, systems must undergo another sanitary survey or on-site inspection every five (5) years, except that noncommunity water systems using only protected and disinfected groundwater, as defined by the department, must undergo subsequent sanitary surveys or on-site inspections at least every ten (10) years after the initial sanitary survey or on-site inspection. The department must review the results of each sanitary survey or on-site inspection to determine whether the existing monitoring frequency is adequate and what additional measure, if any, the system needs to undertake to improve drinking water quality.

(4)(B) Sanitary surveys or on-site inspections must be performed by the department or an agent approved by the department. The system is responsible for ensuring that the sanitary survey or on-site inspection takes place. Agents that can be approved by the department to conduct sanitary surveys include engineers. Agents that can be approved by the department to conduct on-site inspections include, but are not limited to, sanitarians and environmental specialists from other state agencies acting in their official capacity. Reports of sanitary surveys and on-site inspections shall include completed forms approved by the department. Sanitary surveys and on-site inspections shall be done in accordance with criteria established by the department.

(5) Fecal Coliforms/Escherichia coli (E. coli) Testing.

(5)(A) If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine if fecal coliforms are present, except that the system may test for *E. coli* in lieu of fecal coliforms. If fecal coliforms or *E. coli* are present, the system must notify the department by the end of the day when the system is notified of the result, unless the system is notified of the result after the department office is closed, in which case the system must notify the department before the end of the next business day.

(5)(B) The department has the discretion to allow a public water system, on a case-by-case basis, to forego fecal coliform or *E. coli* testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is fecal coliform-positive or *E. coli*-positive. The system must notify the department as specified in subsection (5)(A) of this rule, except as provided in subsection (5)(C) of this rule, and must provide Tier 1 notice to the public as specified in 10 CSR 60-8.010, including the mandatory health effects language for fecal coliform/*E.coli*.

(5)(C) The department, after consideration of the circumstances surrounding a specific incident, may reduce or extend the public notice period for acute violations, as it deems appropriate.

(6) Response to Violation.

(6)(A) A public water system which has exceeded the MCL for total coliforms in section (7) of this rule must report the violation to the department no later than the end of the next business day after it learns of the violation and notify the public in accordance with 10 CSR 60-8.010.

(6)(B) A public water system which has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, must report the monitoring violation to the department within ten (10) days after the system discovers the violation and notify the public in accordance with the applicable requirement in 10 CSR 60-8.010.

(7) MCLs for Microbiological Contaminants.

(7)(A) The MCL is based on the presence or absence of total coliforms in a sample, rather than coliform density. Public water systems need only determine the presence or absence of total coliforms; a determination of total coliform density is not required.

(7)(A)1. For a system which collects at least forty (40) samples per month, if no more than five percent (5.0%) of the samples collected during a month are total coliform-positive, the system is in compliance with the MCL for total coliforms.

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

(7)(B) Any fecal coliform-positive repeat sample or *E. coli*-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or *E. coli*-positive routine sample constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in <u>10 CSR 60-8.010</u>, this is a violation that may pose an acute risk to health.

(7)(C) A public water system must determine compliance with the MCL for total coliforms in subsections (7)(A) and (B) of this rule for each month in which it is required to monitor for total coliforms.

10 CSR 60-4.025 Ground Water Rule Monitoring And Treatment Technique Requirements

PURPOSE: This rule sets standards for public water systems using ground water, including requirements for monitoring, treatment techniques, and corrective actions where significant deficiencies are found. The rule is based on the requirements in the federal Ground Water Rule found in subpart S of 40 CFR part 141, July 1, 2008.

(1) General Requirements and Applicability.

(1)(A) Scope of this rule. The requirements of this rule constitute National Primary Drinking Water Regulations.

(1)(B) Applicability. This rule applies to all public water systems that use ground water except that it does not apply to public water systems that combine all of their ground water with surface water or with ground water under the direct influence of surface water prior to treatment. Also, it does not apply to ground water systems under the direct influence of surface water. For the purposes of this rule, ground water system is defined as any public water system meeting this applicability statement, including consecutive systems receiving finished ground water.

(1)(C) General Requirements.

(1)(C)1. Systems subject to this rule must comply with sanitary survey information requirements described in section (2) of this rule.

(1)(C)2. Wherever it is used in this rule, the term "4-log treatment of viruses" shall mean treatment to at least ninety-nine and ninety-nine hundredths percent (99.99%) (4-log) treatment

of viruses using inactivation, removal, or a department-approved combination of 4-log virus inactivation and removal before or at the first customer.

(1)(C)3. For the purposes of this rule, significant deficiencies include but are not limited to defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the department determines are causing, or have the potential for causing, the introduction of contamination into the water delivered to consumers.

(1)(C)4. Systems subject to this rule must comply with microbial source water monitoring requirements for ground water systems that do not treat all of their ground water to at least ninety-nine and ninety-nine hundredths percent (99.99%) (4-log) treatment of viruses before or at the first customer as described in section (3) of this rule.

(1)(C)5. Systems subject to this rule must comply with treatment technique requirements, described in section (4) of this rule that apply to ground water systems that have fecally contaminated source waters, as determined by source water monitoring conducted under section (3) of this rule, or that have significant deficiencies that are identified by the department, or that are identified by the U.S. Environmental Protection Agency under section 1445 of the Safe Drinking Water Act. A ground water system with fecally contaminated source water or with significant deficiencies subject to the treatment technique requirements of this rule must implement one (1) or more of the following corrective action options under the direction and approval of the department:

(1)(C)5.A. Correct all significant deficiencies;

(1)(C)5.B. Provide an alternate source of water;

(1)(C)5.C. Eliminate the source of contamination; or

(1)(C)5.D. Provide treatment that reliably achieves at least 4-log treatment of viruses before or at the first customer.

(1)(C)6. Ground water systems that are required by this rule to provide at least 4-log treatment of viruses before or at the first customer are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in subsection (4)(B) of this rule.

(1)(C)7. If requested by the department, ground water systems must provide any existing information that will enable the department to perform a hydrogeologic sensitivity assessment. For the purposes of this rule, a hydrogeologic sensitivity assessment is a determination of whether ground water systems obtain water from hydrogeologically sensitive settings.

(2) Sanitary Surveys and Inspections for Ground Water Systems.

(2)(A) Ground water systems must provide, at the department's request, any existing information that will enable the department to conduct a sanitary survey or inspection.

(2)(B) For the purposes of this rule, a sanitary survey includes, but is not limited to, an onsite review, under the supervision of an engineer, of the water source(s) (identifying sources of contamination by using results of source water assessments or other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system in order to evaluate the adequacy of the system, its sources and operations, and the distribution of safe drinking water.

(2)(C) The sanitary survey or inspection must include an evaluation of the water system's--

(**2**)(**C**)1. Source;

(2)(C)2. Treatment;

(2)(C)3. Distribution system;

(2)(C)4. Finished water storage;

(2)(C)5. Pumps, pump facilities, and controls;

(2)(C)6. Monitoring, reporting, and data verification;

(2)(C)7. System management and operation; and

(2)(C)8. Operator compliance with department requirements.

(3) Ground Water Source Microbial Monitoring.

(3)(A) Triggered Source Water Monitoring.

(3)(A)1. General requirements. A ground water system must conduct triggered source water monitoring if the following conditions exist:

(3)(A)1.A. The system does not provide at least 4-log treatment of viruses before or at the first customer for each ground water source; and

(3)(A)1.B. The system is notified that a sample collected under 10 CSR 60-4.020(1) is total coliform-positive and the sample is not invalidated under 10 CSR 60-4.020(3).

(3)(A)2. Sampling requirements. A ground water system must collect, within twenty-four (24) hours of notification of the total coliform-positive sample, at least one (1) ground water source sample from each ground water source in use at the time the total coliform-positive sample was collected under 10 CSR 60-4.020(1), except as provided in subparagraph (3)(A)2.B. of this rule.

(3)(A)2.A. The department may extend the twenty-four (24)-hour time limit on a case-by-case basis if the system cannot collect the ground water source water sample within twenty-four (24)

hours due to circumstances beyond its control. In the case of an extension, the department will specify how much time the system has to collect the sample.

(3)(A)2.B. If approved by the department, systems with more than one (1) ground water source may meet the requirements of this subparagraph by sampling a representative ground water source or sources. If directed by the department, systems must submit for department approval a triggered source water monitoring plan that identifies one (1) or more ground water sources that are representative of each monitoring site in the system's sample siting plan under 10 CSR 60-4.020(1) and that the system intends to use for representative sampling for triggered source water monitoring.

(3)(A)2.C. A ground water system serving one thousand (1,000) people or fewer may use a repeat sample collected from a ground water source to meet both the requirements of <u>10 CSR 60-4.020(2)</u> and to satisfy the monitoring requirements of this section (3) for that ground water source only if the department approves the use of *E. coli* as a fecal indicator for source water monitoring under this subsection (3)(A). If the repeat sample collected from the ground water source is E. coli positive, the system must comply with the additional requirements in paragraph (3)(A)3. of this rule.

(3)(A)3. Additional requirements. If the department does not require corrective action under paragraph (4)(A)2 of this rule for a fecal indicator-positive source water sample collected under paragraph (3)(A)2 of this rule that is not invalidated under subsection (3)(D) of this rule, the system must collect five (5) additional source water samples from the same source within twenty-four (24) hours of being notified of the fecal indicator-positive sample.

(3)(A)4. Consecutive systems. In addition to the other requirements of this subsection (3)(A), a consecutive ground water system that has a total coliform-positive sample collected under 10 CSR 60-4.020(1) must notify the wholesale system(s) within twenty-four (24) hours of being notified of the total coliform-positive sample.

(3)(A)5. Wholesale systems. In addition to the other requirements of this subection (3)(A), a wholesale ground water system that receives notice from a consecutive system it serves that a sample collected under 10 CSR 60-4.020(1) is total colliform-positive must, within twenty-four (24) hours of being notified, collect a sample from its ground water source(s) under paragraph (3)(A)2.of this rule and analyze it for a fecal indicator under subsection (3)(C) of this rule. If this sample is fecal indicator-positive, the system must notify all consecutive systems served by that ground water source of the fecal indicator source water positive within twenty-four (24) hours of being notified of the monitoring result and must meet the requirements of paragraph (3)(A)3. of this rule.

(3)(A)6. Exceptions to triggered source water monitoring requirements. A ground water system is not required to comply with the source water monitoring requirements of this subsection (3)(A) if either of the following conditions exists:

(3)(A)6.A. The department determines, and documents in writing, that the total coliform-positive sample collected under 10 CSR 60-4.020(1) is caused by a distribution system deficiency; or

(3)(A)6.B. The total coliform-positive sample collected under 10 CSR 60-4.020(1) is collected at a location that meets department criteria for distribution system conditions that will cause total coliform-positive samples.

(3)(B) Assessment Source Water Monitoring. If directed by the department, ground water systems must conduct assessment source water monitoring that meets department-determined requirements. A ground water system conducting assessment source water monitoring may use a triggered source water sample collected under paragraph (3)(A)2. of this rule to meet the requirements of this subsection. The department may require any combination of--

(3)(B)1. Collection of a total of twelve (12) ground water source samples that represent each month the system provides ground water to the public;

(3)(B)2. Collection of samples from each well unless the system obtains written department approval to conduct monitoring at one (1) or more wells within the ground water system that are representative of multiple wells used by that system and that draw water from the same hydrogeologic setting;

(3)(B)3. Collection of a standard sample volume of at least one hundred milliliters (100 mL) for fecal indicator analysis regardless of the fecal indicator or analytical method used;

(3)(B)4. Analysis of all ground water source samples using one (1) of the analytical methods listed in paragraph (3)(C)2 of this rule for the presence of E. coli, enterococci, or coliphage;

(3)(B)5. Collection of ground water source samples at a location prior to any treatment of the ground water source unless the department approves a sampling location after treatment; or

(3)(B)6. Collection of ground water source samples at the well itself unless the system's configuration does not allow for sampling at the well itself and the department approves an alternate sampling location that is representative of the water quality of that well.

(3)(C) Analytical Methods.

(3)(C)1. A ground water system subject to the source water monitoring requirements of subsection (3)(A) of this rule must collect a standard sample volume of at least one hundred milliliters (100 mL) for fecal indicator analysis regardless of the fecal indicator or analytical method used.

(3)(C)2. A ground water system must analyze all ground water source samples collected under subsection (3)(A) of this rule using one (1) of the analytical methods listed in <u>40 CFR 141.402</u>.

(3)(D) Invalidation of a Fecal Indicator-Positive Ground Water Source Sample.

(3)(D)1. A ground water system may obtain department invalidation of a fecal indicator-positive ground water source sample collected under subsection (3)(A) of this rule only under the following conditions:

(3)(D)1.A. The system provides the department with written notice from the laboratory that improper sample analysis occurred; or

(3)(D)1.B. The department determines and documents in writing that there is substantial evidence that a fecal indicator-positive ground water source sample is not related to source water quality.

(3)(D)2. If the department invalidates a fecal indicator-positive ground water source sample, the ground water system must collect another source water sample under subsection (3)(A) of this rule within twenty-four (24) hours of being notified by the department of its invalidation decision and have it analyzed for the same fecal indicator listed in <u>40 CFR 141.402</u>. The department may extend the twenty-four (24)-hour time limit on a case-by-case basis if the system cannot collect the source water sample within twenty-four (24) hours due to circumstances beyond its control. In the case of an extension, the department will specify how much time the system has to collect the sample.

(3)(E) Sampling Location.

(3)(E)1. Any ground water source sample required under subsection (3)(A) of this rule must be collected at a location prior to any treatment of the ground water source unless the department approves a sampling location after treatment.

(3)(E)2. If the system's configuration does not allow for sampling at the well itself, the system may collect a sample at a department-approved location to meet the requirements of subsection (3)(A) of this rule if the sample is representative of the water quality of that well.

(3)(F) New Sources. If directed by the department, a ground water system that places a new ground water source into service after November 30, 2009, must conduct assessment source water monitoring under subsection (3)(B) of this rule. If directed by the department, the system must begin monitoring before the ground water source is used to provide water to the public.

(3)(G) Public Notification. A ground water system with a ground water source sample collected under subsection (3)(A) or (3)(B) of this rule that is fecal indicator-positive and that is not invalidated under subsection (3)(D) of this rule, including consecutive systems served by the ground water source, must conduct Tier 1 public notification under <u>10 CSR 60-8.010</u>.

(3)(H) Monitoring Violations. Failure to meet the requirements of subsections (3)(A)-(F) of this rule is a monitoring violation and requires the ground water system to provide Tier 3 public notification under <u>10 CSR 60-8.010</u>.

(4) Treatment Technique Requirements.

(4)(A) Ground Water Systems with Significant Deficiencies or Source Water Fecal Contamination.

(4)(A)1. The treatment technique requirements of this rule must be met by ground water systems when a significant deficiency is identified or when a ground water source sample collected under paragraph (3)(A)3. of this rule is fecal indicator-positive.

(4)(A)2. If directed by the department, a ground water system with a ground water source sample collected under paragraph (3)(A)3, paragraph (3)(A)4, or subsection (3)(B) that is fecal indicator-positive must comply with the treatment technique requirements of this section (4).

(4)(A)3. When a significant deficiency is identified at a public water system that uses both ground water and surface water or ground water under the direct influence of surface water, the system must comply with provisions of this subsection (4)(A) except in cases where the department determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or ground water under the direct influence of surface water.

(4)(A)4. Unless the department directs the ground water system to implement a specific corrective action, the ground water system must consult with the department regarding the appropriate corrective action within thirty (30) days of receiving written notice from the department of a significant deficiency, written notice from a laboratory that a ground water source sample collected under paragraph (3)(A)3. of this rule was found to be fecal indicator-positive, or direction from the department that a fecal indicator-positive sample collected under paragraph (3)(A)4., or subsection (3)(B) of this rule requires corrective action. For the purposes of this rule, significant deficiencies include but are not limited to defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the department determines are causing, or have potential for causing, the introduction of contamination into the water delivered to consumers. Such significant deficiencies may include, but may not be limited to, the following:

(4)(A)4.A. For the source, any improperly constructed, sealed, or inadequately screened opening in the well head;

(4)(A)4.B. For treatment--

(4)(A)4.B.(I) Failure to perform and record the results of sufficient analyses to maintain control of treatment process or water quality;

(4)(A)4.B.(II) Systems required to provide 4-log virus inactivation or removal that do not meet disinfection concentration and detention time requirements; or

(4)(A)4.B.(III) Systems that are required to disinfect that do not have standby redundant disinfection facilities;

(4)(A)4.C. For distribution systems--

(4)(A)4.C.(I) The existence of a known unprotected cross-connection;

(4)(A)4.C.(II) Widespread or persistent low pressure events as defined in <u>10 CSR 60-4.080(9)</u>;

(4)(A)4.C.(III) Submerged automatic air release valves or uncapped manual air release valves; or

(4)(A)4.C.(IV) Failure to properly disinfect new or newly-repaired water mains;

(4)(A)4.D. For finished water storage--

(4)(A)4.D.(I) The existence of any unprotected, inadequately protected, or improperly constructed opening in a storage facility; or

(4)(A)4.D.(II) Evidence that the water in the storage facility has been contaminated (for example, feathers or nesting materials in an overflow pipe or positive bacteria samples);

(4)(A)4.E. For pumps or pump facilities and controls, repeated or persistent low pressures caused by pump or pump control problems or inadequate pump capacity;

(4)(A)4.F. For monitoring, reporting, or data verification--

(4)(A)4.F.(I) Falsification of monitoring or reporting records; or

(4)(A)4.F.(II) Failure to maintain system records required under <u>10 CSR 60-9.010</u>;

(4)(A)4.G. For water system management or operations, failure to address significant deficiencies listed in the most recent inspection or sanitary survey report; and

(4)(A)4.H. For operator compliance--

(4)(A)4.H.(I) Lack of properly certified chief operator in responsible charge of the treatment facility as required under 10 CSR 60-14.010(4); or

(4)(A)4.H.(II) Lack of properly certified chief operator in responsible charge of the distribution facility as required under 10 CSR 60-14.010(4).

(4)(A)5. Within one hundred twenty (120) days (or earlier if directed by the department) of receiving written notification from the department of a significant deficiency, written notice from a laboratory that a ground water source sample collected under paragraph (3)(A)3. of this rule was found to be fecal indicator-positive, or direction from the department that a fecal indicator-positive sample collected under paragraph (3)(A)4., or subsection (3)(B) of this rule requires corrective action, the ground water system must either--

(4)(A)5.A. Have completed corrective action in accordance with applicable department plan review processes or other department guidance or direction, if any, including department-specified interim measures; or

(4)(A)5.B. Be in compliance with a department-approved corrective action plan and schedule subject to the following conditions:

(4)(A)5.B.(I) Any subsequent modifications to a department-approved corrective action plan and schedule must be approved by the department; and

(4)(A)5.B.(II) If the department specifies interim measures for protection of the public health pending department approval of the corrective action plan and schedule or pending completion of the corrective action plan, the system must comply with these interim measures as well as with any schedule specified by the department.

(4)(A)6. Corrective action alternatives. Ground water systems that meet the conditions of paragraph (4)(A)1. or (4)(A)2. of this rule must implement one (1) or more of the following corrective action alternatives under the direction and approval of the department:

(4)(A)6.A. Correct all significant deficiencies;

(4)(A)6.B. Provide an alternate source of water;

(4)(A)6.C. Eliminate the source of contamination; or

(4)(A)6.D. Provide treatment that reliably achieves at least 4-log treatment of viruses before or at the first customer for the ground water source.

(4)(A)7. Special notice to the public of significant deficiencies or source water fecal contamination.

(4)(A)7.A. In addition to the applicable public notification requirements of 10 CSR 60-8.010(2), a community ground water system that receives notice from the department of a significant deficiency or notification of a fecal indicator-positive ground water source sample that is not invalidated by the department under subsection (3)(D) of this rule must inform the public served by the water system under 10 CSR 60-8.030(2)(H)6. of the fecal indicator-positive source sample or of any significant deficiency that has not been corrected. The system must continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the ground water source is determined by the department to be corrected under paragraph (4)(A)5. of this rule.

(4)(A)7.B. In addition to the applicable public notification requirements of <u>10 CSR 60-8.010</u>, a non-community ground water system that receives notice from the department of a significant deficiency must inform the public served by the water system in a manner approved by the department of any significant deficiency that has not been corrected within twelve (12) months of being notified by the department, or earlier if directed by the department. The system must continue to inform the public annually until the significant deficiency is corrected.

(4)(A)7.B.(I) The information must include:

(4)(A)7.B.(I)(a) The nature of the significant deficiency and the date the significant deficiency was identified by the department;

(4)(A)7.B.(I)(b) The department-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and

(4)(A)7.B.(I)(c) For systems with a large proportion of non-English speaking consumers, as determined by the department, information in the appropriate language(s) regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

(4)(A)7.B.(II) If directed by the department, a non-community water system with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction.

(4)(B) Compliance Monitoring.

(4)(B)1. Existing ground water sources. A ground water system that is not required to meet the source water monitoring requirements of this rule for any ground water source because it provides at least 4-log treatment of viruses before or at the first customer for any ground water source before December 1, 2009, must notify the department in writing that it provides at least 4-log treatment of viruses before or at the first customer for the specified ground water source and begin compliance monitoring in accordance with paragraph (4)(B)3. of this rule by December 1, 2009. Notification to the department must include engineering, operational, or other information that the department requests to evaluate the submission. If the system subsequently discontinues 4-log treatment of viruses before or at the first customer for a ground water source, the system must conduct ground water source monitoring as required under section (3) of this rule.

(4)(B)2. New ground water sources. A ground water system that places a ground water source in service after November 30, 2009, that is not required to meet the source water monitoring requirements of this rule because the system provides at least 4-log treatment of viruses before or at the first customer for the ground water source must comply with the following:

(4)(B)2.A. The system must notify the department in writing that it provides at least 4-log treatment of viruses before or at the first customer for the ground water source. Notification to the department must include engineering, operational, or other information that the department requests to evaluate the submission;

(4)(B)2.B. The system must conduct compliance monitoring as required under paragraph (4)(B)3. of this rule within thirty (30) days of placing the source in service; and

(4)(B)2.C. The system must conduct ground water source monitoring under section (3) of this rule if the system subsequently discontinues 4-log treatment of viruses before or at the first customer for the ground water source.

(4)(B)3. Monitoring requirements. A ground water system subject to the requirements of subsection (4)(A), or paragraph (4)(B)1. or (4)(B)2. of this rule must monitor the effectiveness and reliability of treatment for that ground water source before or at the first customer as follows:

(4)(B)3.A. Chemical disinfection.

(4)(B)3.A.(I) A ground water system that serves greater than three thousand three hundred (3,300) people must continuously monitor the residual disinfectant concentration using analytical methods specified in <u>10 CSR 60-5.010(5)</u> at a location approved by the department and must record the lowest residual disinfectant concentration each day that water from the ground water source is served to the public. The ground water system must maintain the department-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. If there is a failure in the continuous monitoring equipment, the ground water system must conduct grab sampling every four (4) hours until the continuous monitoring equipment is returned to service. The system must resume continuous residual disinfectant monitoring within fourteen (14) days.

(4)(B)3.A.(II) A ground water system that serves three thousand three hundred (3,300) or fewer people must monitor the residual disinfectant concentration using analytical methods specified in 10 CSR 60-5.010(5) at a location approved by the department and record the residual disinfection concentration each day that water from the ground water source is served to the public. The ground water system must maintain the department-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. The ground water system must take a daily grab sample during the hour of peak flow or at another time specified by the department. If any daily grab sample measurement falls below the department-determined residual disinfectant concentration is restored to the department-determined level. Alternatively, a ground water system that serves three thousand three hundred (3,300) or fewer people may monitor continuously and meet the requirements in part (I) of this subparagraph (4)(B)3.A.

(4)(B)3.B. Membrane filtration. A ground water system that uses membrane filtration to meet the requirements of this rule must monitor the membrane filtration process in accordance with all department-specified monitoring requirements and must operate the membrane filtration in accordance with all department-specified compliance requirements. The department will consider the manufacturer's recommendations and guidelines as well as standard industry practices in setting monitoring and compliance requirements. A ground water system that uses membrane filtration is in compliance with the requirement to achieve at least 4-log removal of viruses when--

(4)(B)3.B.(I) The membrane has an absolute molecular weight cut-off, or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4-log removal of viruses;

(4)(B)3.B.(II) The membrane process is operated in accordance with department-specified compliance requirements; and

(4)(B)3.B.(III) The integrity of the membrane is intact.

(4)(B)3.C. Alternative treatment. A ground water system that uses a department-approved alternative treatment to meet the requirements of this rule by providing at least 4-log treatment of viruses before or at the first customer must monitor the alternative treatment in accordance with all department-specified monitoring requirements and operate the alternative treatment in accordance with all compliance requirements that the department determines to be necessary to achieve at least 4-log treatment of viruses. The department will consider the manufacturer's recommendations and guidelines as well as standard industry practices in setting monitoring and compliance requirements for the approved alternative treatment.

(4)(C) Discontinuing Treatment. A ground water system may discontinue 4-log treatment of viruses before or at the first customer for a ground water source if the department determines and documents in writing that 4-log treatment of viruses is no longer necessary for that ground water source. A system that discontinues 4-log treatment of viruses is subject to the source water monitoring and analytical methods requirements of section (3) of this rule.

(4)(D) Failure to meet the monitoring requirements of this section is a monitoring violation and requires the ground water system to provide public notification under section 10 CSR 60-8.010(4) (Tier 3 notice).

(5) Treatment Technique Violations for Ground Water Systems.

(5)(A) A ground water system with a significant deficiency is in violation of the treatment technique requirement if, within one hundred twenty (120) days (or earlier if directed by the department) of receiving written notice from the department of the significant deficiency, the system--

(5)(A)1. Does not complete corrective action in accordance with any applicable department plan review processes or other department guidance and direction, including department-specified interim actions and measures; or

(5)(A)2. Is not in compliance with a department-approved corrective action plan and schedule.

(5)(B) Unless the department invalidates a fecal indicator-positive ground water source sample under subsection (3)(D) of this rule, a ground water system is in violation of the treatment technique requirement if, within one hundred twenty (120) days (or earlier if directed by the department) of meeting the conditions of paragraph (4)(A)1. or (4)(A)2. of this rule, the system--

(5)(B)1. Does not complete corrective action in accordance with any applicable department plan review processes or other department guidance and direction, including department-specified interim measures; or

(5)(B)2. Is not in compliance with a department-approved corrective action plan and schedule.

(5)(C) A ground water system subject to the requirements of paragraph (4)(B)3. of this rule that fails to maintain at least 4-log treatment of viruses before or at the first customer for a ground water source is in violation of the treatment technique requirement if the failure is not corrected

within four (4) hours of determining the system is not maintaining at least 4-log treatment of viruses before or at the first customer.

(5)(D) Ground water system must give public notification under section 10 CSR 60-8.010(3) (Tier 2 notice) for the treatment technique violations specified in this section.

(6) Reporting Requirements. Reporting requirements are in <u>10 CSR 60-7.010</u> Reporting Requirements.

(7) Record-Keeping Requirements. Record-keeping requirements are in <u>10 CSR 60-9.010</u> Requirements for Maintaining Public Water System Records.

10 CSR 60-4.030 Maximum Inorganic Chemical Contaminant Levels, Action Levels And Monitoring Requirements

PURPOSE: This rule establishes maximum contaminant levels, action levels and monitoring requirements for inorganic contaminants.

(1) Maximum Contaminant Levels (MCL) or Action Levels.

(1)(A) The maximum contaminant or action level listed as follows for inorganic chemicals 1.-17. apply to community water systems. The maximum contaminant or action level listed as follows for inorganic chemicals 1.-9. and 11.-17. apply to nontransient noncommunity water systems. The maximum contaminant or action level listed as follows for inorganic chemicals 13.-15. apply to transient noncommunity water systems:

Co	ntaminant	Maximum Contaminant Level (MCL)
1.	Antimony	0.006 mg/l
2.	Arsenic	0.05 mg/l (until Jan. 23, 2006)
3.	Asbestos	0.010 mg/l (effective Jan. 23, 2006) 7 million fibers/liter
		in length)
4.	Barium	2 mg/l
5.	Beryllium	0.004 mg/l
б.	Cadmium	0.005 mg/l
7.	Chromium	0.1 mg/l
8.	Copper	*(See <u>10 CSR 60-15.010(3)(B)</u> .)
9.	Cyanide	0.2 mg/l
10.	Fluoride	4.0 mg/l
11.	Lead	*(See <u>10 CSR 60-15.010(3)(A)</u> .)
12.	Mercury	0.002 mg/l
13.	Nitrate	10 mg/l (as nitrogen)
14.	Nitrite	1 mg/l (as nitrogen)
15.	Total Nitrate and Nitrite	10 mg/l (as nitrogen)
16.	Selenium	0.05 mg/l
17.	Thallium	0.002 mg/l

* Indicates action levels rather than maximum contaminant levels.

(1)(B) Nitrate levels not to exceed twenty (20) mg/l may be allowed in a noncommunity water system if the supplier of water demonstrates to the satisfaction of the department that all of the following factors apply to the situation:

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

(1)(B)2. The noncommunity water system is meeting the public notification requirements under 10 CSR 60-8.010(9), including continuous posting of the fact that nitrate levels exceed ten (10) mg/l and the potential health effects of exposure;

(1)(B)3. Local and state public health authorities will be notified annually of nitrate levels that exceed ten (10) mg/l; and

(1)(B)4. No adverse health effects shall result.

(2) Monitoring Frequency.

(2)(A) Asbestos. The frequency of monitoring to determine compliance with the maximum contaminant level (MCL) for asbestos specified in section (1) of this rule shall be conducted as follows:

(2)(A)1. Each community and nontransient noncommunity water system is required to monitor for asbestos during the first three (3)-year compliance period of each nine (9)-year compliance cycle;

(2)(A)2. If monitoring data collected after January 1, 1990, are generally consistent with the requirements of subsection (2)(A) of this rule, then the state may allow systems to use those data to satisfy the monitoring requirement for the initial three (3)-year compliance period;

(2)(A)3. Waivers.

(2)(A)3.A. The system may apply to the department for a use waiver as described in 10 CSR 60-6.060(2). If the department grants the waiver, the system is not required to monitor while the waiver is effective. A waiver remains in effect until the completion of the three (3)-year compliance period and must be renewed for subsequent compliance periods. Systems not receiving a waiver must monitor in accordance with the provisions of paragraph (2)(A)1. of this rule.

(2)(A)3.B. The department may grant a waiver based on the potential asbestos contamination of the water source and the use of asbestos-cement pipe for finished water distribution and the corrosive nature of the water;

(2)(A)4. Increased and decreased monitoring.

(2)(A)4.A. A system that is out of compliance with the MCL as determined in section (6) of this rule shall monitor quarterly beginning in the next quarter after the violation occurs.

(2)(A)4.B. The department may decrease the quarterly monitoring requirement to the frequency specified in paragraph (2)(A)1. of this rule provided the department has determined that the analytical results for the system are reliably and consistently less than the MCL. In no case can the department make this determination unless a groundwater system takes a minimum of two (2) quarterly samples and a surface (or combined surface/ground) water system takes a minimum of four (4) quarterly samples; and

(2)(A)5. Sample collection.

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

(2)(A)5.B. A system vulnerable to asbestos contamination due solely to source water shall monitor in accordance with the provision of section (4) of this rule.

(2)(A)5.C. A system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take at least one (1) sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(2)(B) Inorganic Chemicals. Community and nontransient noncommunity water systems shall monitor for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium and thallium as set forth here.

(2)(B)1. Groundwater systems shall take one (1) sample at each sampling point during each three (3)-year compliance period beginning in the initial compliance period. Surface water systems (or combined surface/ground) shall take one (1) sample annually at each sampling point beginning in the initial compliance period.

(2)(B)2. Waivers.

(2)(B)2.A. The system may apply to the department for a susceptibility waiver as described in $\underline{10}$ CSR 60-6.060(3). If the department grants the waiver, the system is required to take a minimum of one (1) sample while the waiver is effective. The term during which the waiver is effective shall not exceed one (1) nine (9)-year compliance cycle. Systems not receiving a waiver must monitor in accordance with the provisions of paragraph (2)(B)1. of this rule.

(2)(B)2.B. The department may grant a waiver provided surface water systems have monitored annually for at least three (3) years and groundwater systems have conducted a minimum of three (3) rounds of monitoring. At least one (1) sample shall have been taken since January 1, 1990. Both surface and ground water systems shall demonstrate that all previous analytical results were reliably and consistently less than the MCL. Systems that use a new water source

are not eligible for a waiver until three (3) rounds of monitoring from the new source have been completed.

(2)(B)2.C. In determining the appropriate reduced monitoring frequency, the department shall consider the reported concentrations from all previous monitoring, the degree of variation in reported concentrations and other factors which may affect contaminant concentrations (such as changes in groundwater pumping rates, changes in the system's configuration, changes in the system's operating procedures, or changes in stream flows or characteristics).

(2)(B)2.D. A decision by the department to grant a waiver shall be made in writing and shall set forth the basis for the determination. The determination may be initiated by the department or upon an application by the public water system. The public water system shall specify the basis for its request. The department shall review and, where appropriate, revise its determination of the appropriate monitoring frequency when the system submits new monitoring data or when other data relevant to the system's appropriate monitoring frequency become available.

(2)(B)2.E. The department may grant a waiver for monitoring for cyanide, if the department determines that the system is not vulnerable due to lack of proximity to any industrial source of cyanide.

(2)(B)3. Increased and decreased monitoring.

(2)(B)3.A. Systems which exceed the MCLs as calculated in section (6) of this rule shall monitor quarterly beginning in the next quarter after the violation occurs.

(2)(B)3.B. Where the results of sampling for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium indicate an exceedance of the maximum contaminant level, 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.

(2)(B)3.C. The department may decrease the quarterly monitoring requirement to the frequencies specified in paragraph (2)(B)1. of this rule provided it has determined that the analytical results for the system are reliably and consistently below the MCL. In no case can the department make this determination unless a groundwater system takes a minimum of two (2) quarterly samples and a surface water system (or combined surface/ground) takes a minimum of four (4) quarterly samples.

(2)(B)3.D. All new systems or systems that use a new source of water that begin operation after January 22, 2004 must demonstrate compliance with the MCL within a period of time specified by the department. The system must 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 (2).

(2)(B)3.E. For systems which are conducting monitoring at a frequency greater than annual, compliance with the maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium is determined by a running annual average at any sampling point. If the average at any sampling point is greater than the MCL, then the system is out of compliance. If any one (1) sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any sample below the method detection limit shall be calculated at zero (0) for the purpose of determining the annual average. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

(2)(B)3.F. For systems which are monitoring annually, or less frequently, and whose sample exceeds one-half (1/2) the MCL for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium, the system must begin quarterly monitoring. The system will not be in violation of the MCL until is has completed one (1) year of quarterly monitoring. If any sample result will cause the running annual average to exceed the MCL at any sampling point, the system is out of compliance with the MCL. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

(2)(B)3.G. Arsenic sampling results will be reported to the nearest 0.001 mg/l.

(2)(C) Nitrate. All public water systems (community; nontransient noncommunity; and transient noncommunity) shall monitor to determine compliance with the MCL for nitrate specified in section (1) of this rule. The frequency of monitoring shall be conducted as follows:

(2)(C)1. Groundwater systems.

(2)(C)1.A. All public water systems (community; nontransient noncommunity; and transient noncommunity) served by groundwater systems shall monitor annually beginning in the initial compliance period.

(2)(C)1.B. The repeat monitoring frequency for groundwater systems shall be quarterly for at least one (1) year following any one (1) sample in which the concentration is greater than or equal to fifty percent (\geq 50%) of the MCL.

(2)(C)1.C. The department may allow a groundwater system to reduce the sampling frequency to an annual basis after four (4) consecutive quarterly samples are reliably and consistently less than fifty percent (<50%) of the MCL.

(2)(C)1.D. After a round of quarterly sampling is completed, a system which is monitoring annually shall take subsequent samples during the quarter(s) which previously resulted in the highest analytical result; and

(2)(C)2. Surface water systems.

(2)(C)2.A. All public water systems (community; nontransient noncommunity; and transient noncommunity) served by a surface water system shall monitor quarterly beginning in the initial compliance period.

(2)(C)2.B. The department may allow a surface water system to reduce the sampling frequency to annually if all analytical results from four (4) consecutive quarters are less than fifty percent (<50%) of the MCL.

(2)(C)2.C. A surface water system shall return to quarterly monitoring if any one (1) sample is greater than or equal to fifty percent (\geq 50%) of the MCL.

(2)(C)2.D. After a round of quarterly sampling is completed, a system which is monitoring annually shall take subsequent samples during the quarter(s) which previously resulted in the highest analytical result.

(2)(D) Nitrite. All public water systems (community; nontransient noncommunity; and transient noncommunity) shall monitor to determine compliance with the MCL for nitrite specified in section (1) of this rule. The frequency of monitoring shall be conducted as follows:

(2)(D)1. All public water systems shall take one (1) sample at each sampling point in the initial three (3)-year compliance period;

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

(2)(D)3. Repeat monitoring.

(2)(D)3.A. The repeat monitoring frequency for any water system shall be quarterly for at least one (1) year following any one (1) sample in which the concentration is greater than or equal to fifty percent (\geq 50%) of the MCL.

(2)(D)3.B. The department may allow a system to reduce the sampling frequency to annually after determining the analytical results for the system are reliably and consistently less than the MCL.

(2)(D)3.C. Systems which are monitoring annually shall take each subsequent sample during the quarter(s) which previously resulted in the highest analytical result.

(2)(E) Lead and Copper. All community and nontransient noncommunity water systems are required to monitor for lead and copper (see 10 CSR 60-15.070 for monitoring frequency, requirements and protocol for lead and copper).

(3) Monitoring Requirements.

(3)(A) Each public water system shall monitor at the time designated by the department during each three (3)-year compliance period.

(3)(B) Systems may apply to the department to conduct more frequent monitoring than the minimum monitoring frequencies specified in this chapter.

(3)(C) The department may require more frequent monitoring than specified in section (2) of this rule or may require confirmation samples for positive and negative results at its discretion.

(4) Monitoring Protocol. For the purpose of determining compliance with MCLs, samples must be collected for analyses as follows:

(4)(A) All public water systems shall take a minimum of one (1) sample at every entry point to the distribution system after any application of treatment which is representative of each source after treatment (called a sampling point) beginning in the initial compliance period;

(4)(B) The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant; and

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

(5) Confirmation Samples.

(5)(A) Where the results of sampling for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium or thallium indicate an exceedance of the MCL, 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.

(5)(B) Nitrate and Nitrite.

(5)(B)1. Where nitrate or nitrite sampling results indicate an exceedance of 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.

(5)(B)2. Systems unable to comply with the twenty-four (24)-hour sampling requirement must immediately notify persons served by the public water system in accordance with 10 CSR 60-8.010(2). Systems exercising this option must take and analyze a confirmation sample within two (2) weeks of notification of the analytical results of the first sample.

(5)(C) If a department-required confirmation sample is taken for any contaminant, then 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 section (6) of this rule. The department has the discretion to delete results of obvious sampling errors.

(6) Compliance. Compliance with section (1) of this rule shall be determined based on the analytical result(s) obtained at each sampling point.

(6)(A) For systems which are conducting monitoring at a frequency greater than annual, compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium or thallium is determined by a running annual average at each sampling point. If the average at any sampling point is greater than the MCL, then the system is out of compliance. If any one (1) sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any sample below the method detection limit shall be calculated at zero (0) for the purpose of determining the annual average.

(6)(B) For systems which are monitoring annually, or less frequently, the system is out of compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium or thallium if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the department, the determination of compliance will be based on the average of the two (2) samples.

(6)(C) Compliance with the MCLs for nitrate and nitrite is determined based on one (1) sample if the levels of these contaminants is below the MCLs. If the levels exceed the MCLs in the initial sample, a confirmation sample is required in accordance with subsection (5)(B) of this rule and compliance shall be determined based on the average of the initial and confirmation samples.

(6)(D) All community and nontransient noncommunity water systems are required to monitor for lead and copper (see 10 CSR 60-15.070 for compliance requirements if lead and copper action levels are exceeded).

(7) Public Notice. If the result of analyses indicates that the level of antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium or thallium exceeds the MCL, the supplier of water must report to the department within seven (7) days.

(7)(A) When the system is out of compliance for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium or thallium, as determined by section (6) of this rule, the supplier of water must notify the department as required by 10 CSR 60-7.010 and give public notice as required by 10 CSR 60-8.010.

(7)(B) When the system is out of compliance for nitrate, nitrite or total nitrate and nitrite, as determined by section (6) of this rule, the supplier of water must notify the department as required by 10 CSR 60-7.010 and give public notice as required by 10 CSR 60-8.010.

(7)(C) When the system is out of compliance for lead or copper as determined by 10 CSR 60-15.070, 10 CSR 60-15.080 and 10 CSR 60-15.090, the supplier of water must notify the department as required by 10 CSR 60-7.020 and give public notice as required by 10 CSR 60-8.010.

10 CSR 60-4.040 Maximum Synthetic Organic Chemical Contaminant Levels And Monitoring Requirements

PURPOSE: This rule establishes maximum contaminant levels and monitoring requirements for synthetic organic chemical contaminants.

(1) The following are the maximum contaminant levels (MCLs) for synthetic organic chemical contaminants.

Co	ontaminant	Maximum Contaminant Level, Milligrams Per Liter
1.	Alachlor	0.002
2.	Atrazine	0.003
3.	Benzo(a)pyrene	0.0002
4.	Carbofuran	0.04
5.	Chlordane	0.002
б.	Dalapon	0.2
7.	Di(2-ethylhexyl) adipate	0.4
8.	Dibromochloropropane (DBCP)	0.0002
9.	Di(2-ethylhexyl) phthalate	0.006
10.	Dinoseb	0.007
11.	Diquat	0.02
12.	Endothall	0.1
13.	Endrin	0.002
14.	2,4-D	0.07
15.	Ethylene dibromide (EDB)	0.00005
16.	Glyphosate	0.7
17.	Heptachlor	0.0004
18.	Heptachlor epoxide	0.0002
19.	Hexachlorobenzene	0.001
20.	Hexachlorocyclopentadiene	0.05
21.	Lindane	0.0002
22.	Methoxychlor	0.04
23.	Oxamyl (Vydate)	0.2
24.	Picloram	0.5
25.	Polychlorinated biphenyls (PCB's)	0.0005 (as Determined by Method 508A only)
26.	Pentachlorophenol	0.001
27.	Simazine	0.004
28.	Toxaphene	0.003
29.	2,3,7,8-TCDD (Dioxin)	0.0000003
30.	2,4,5-TP (Silvex)	0.05

(2) For the purpose of determining compliance with MCLs, a supplier of water must collect samples of the product water for analysis as follows:

(2)(A) During the initial three (3)-year compliance period, all community and nontransient noncommunity water systems must collect an initial round of four (4) consecutive quarterly samples unless a waiver has been granted by the department. The department will designate the year in which each system samples within this compliance period;

(2)(B) All public water systems shall sample at points in the distribution system representative of each water source or at each entry point to the distribution system. The sampling point will be after the application of treatment, if any. Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant;

(2)(C) If the system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions; and

(2)(D) The department may require more frequent monitoring than specified in this section of the rule and may require confirmation samples for positive or negative results at its discretion.

(3) If contaminants are not detected during the initial sampling as indicated in section (2) of this rule, systems may decrease their sampling frequency beginning in the next three (3)-year compliance period.

(3)(A) Systems that serve greater than three thousand three hundred (>3,300) persons may reduce their sampling frequencies to two (2) quarterly samples at each sampling point in one (1) year in each compliance period.

(3)(B) Systems that serve less than or equal to three thousand three hundred (\leq 3,300) persons may reduce their sampling frequencies to one (1) sample in each compliance period.

(4) The department may allow sampling data collected between January 1, 1990 and December 31, 1995, to satisfy the initial base sampling requirements, if the sampling was completed as required by subsections (2)(B) and (C) of this rule.

(5) If contaminants are detected in any sample, then systems must sample quarterly beginning in the next quarter at each sampling point which resulted in a detection.

(5)(A) Groundwater systems must sample a minimum of two (2) quarters and surface water must sample a minimum of four (4) quarters to establish a baseline.

(5)(B) If the MCL is exceeded as described in subsection (5)(E) or (F) of this rule, then systems must sample quarterly beginning in the next quarter. Systems must sample a minimum of four (4) quarters to establish a baseline.

(5)(C) If the baseline indicates a system's analytical results are reliably and consistently below the MCL, the department may reduce the system's sampling frequency to annually. (Annual sampling must be conducted during the quarter which previously yielded the highest analytical result.)

(5)(D) Systems which have three (3) consecutive annual samples with no detection of a contaminant may apply to the department for a waiver.

(5)(E) If one (1) sampling point is in violation of an MCL, the system is in violation of the MCL.

(5)(E)1. For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

(5)(E)2. Systems monitoring annually or less frequently whose sample result exceeds the regulatory detection level as defined by 10 CSR 60-5.010(6)(B) must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one (1) year of quarterly sampling.

(5)(E)3. If any sample result will cause the running annual average to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately.

(5)(E)4. If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected.

(5)(E)5. If a sample result is less than the detection limit, zero will be used to calculate the annual average.

(5)(F) If monitoring results in detection of one (1) or more of certain related contaminants (aldicarb, aldicarb sulfone, aldicarb sulfoxide and heptachlor, heptachlor epoxide), then subsequent monitoring shall analyze for all related contaminants.

(6) A public water system may apply to the department for a waiver from required sampling. Systems are eligible for reduced monitoring in the initial three (3)-year compliance period. The waiver is effective for one (1) compliance period. It must be renewed in subsequent compliance periods or the system must conduct sampling as required by subsection (2)(A) of this rule.

(6)(A) A public water system may apply to the department for a use waiver for reduced monitoring from required sampling if previous use of the chemical can be ruled out as required by 10 CSR 60-6.060(2).

(6)(B) A public water system may apply to the department for a susceptibility waiver for reduced monitoring contingent on the conduct of a thorough vulnerability assessment as required by 10 CSR 60-6.060(3).

(7) As determined by the department, a confirmation sample may be required for either positive or negative results. If a confirmation sample is used, the compliance determination is based ont he average of the results of both the confirmation sample and the initial sample. The department has the discretion to delete results of obvious sampling errors from this calculation.

(8) Any public water system violating MCLs or monitoring and reporting requirements for any of the contaminants listed in section (1) of this rule must notify the department within seven (7) days and give public notice as required by 10 CSR 60-8.010.

(9) Treatment Technique.

(9)(A) All public water systems shall use treatment techniques in lieu of MCLs for specified contaminants.

(9)(B) Each public water system must certify annually in writing to the department (using third party or manufacturers' certification) that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the levels specified as follows:

Acrylamide = 0.05% dosed as 1 part per million (ppm) (or equivalent)

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

Certifications can relay on manufacturers or third parties, as approved by the department.

(10) All new systems or systems that use a new source of water that begin operation after January 22, 2004 must demonstrate compliance with the MCL or treatment technique within a period of time specified by the department. The system must also comply with the initial sampling frequencies specified by the department to ensure a system can demonstrate compliance with the MCL or treatment technique. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in section (5) of this rule.

10 CSR 60-4.050 Maximum Turbidity Levels And Monitoring Requirements And Filter Backwash Recycling

PURPOSE: This rule establishes maximum contaminant levels and monitoring requirements for turbidity.

(1) Applicability.

(1)(A) This rule applies to all public water systems that use surface water or ground-water under the direct influence of surface water. Requirements and compliance dates vary depending on system size.

(1)(B) Beginning on November 30, 2002, any water treatment plant proposed for construction or major modification must be designed to meet the filter backwash requirements in section (4) of this rule.

(2) Systems Serving Less Than Ten Thousand (10,000) People. (Note: This section remains in effect only until January 13, 2005. Beginning January 14, 2005, the turbidity levels and other requirements in section (3) of this rule replace the requirements of this section.)

(2)(A) Maximum Turbidity Levels.

(2)(A)1. The turbidity level must be less than or equal to 0.5 turbidity units in at least ninety-five percent (95%) of the measurements taken each month.

(2)(A)2. The turbidity level must at no time exceed five (5) turbidity units in any one (1) confirmed measurement.

(2)(B) The frequency of sampling shall be as set forth in 10 CSR 60-4.080(3).

(2)(C) If the result of a single turbidity measurement exceeds the level established in subsection (2)(A), the measurement must be confirmed by resampling, preferably within one (1) hour. The resample result must replace the original sample result for determining compliance with subsection (2)(A) of this rule.

(2)(D) If any confirmed sample result exceeds five (5) turbidity units, the supplier of water must notify the department by the end of the next business day and give notice as required by 10 CSR 60-8.010(2).

(2)(E) The department, on a case-by-case basis, may allow a system to operate at a maximum turbidity level of 1.0 turbidity units in at least ninety-five percent (95%) of the measurements taken each month if the following criteria are met: the total percent removal and inactivation of *Giardia lamblia* is ninety-nine and nine-tenths percent (99.9%), required treatment is provided, the treatment facilities are properly operated, none of the treatment units are malfunctioning due to mechanical failure or incorrect construction, the system is in compliance with all of the disinfection requirements of 10 CSR 60-4.055(1)-(4), the treatment facilities are providing ninety-nine percent (99%) *Giardia* cyst removal and the system cannot meet the turbidity level of 0.5 turbidity units due to raw water quality, iron, manganese or similar compelling factors. The request to operate at the higher turbidity level must be made in writing and be accompanied by an engineering report which includes the results of full scale particle or *Giardia* cyst removal studies, operational test data, water analyses results, a report of the sanitary survey of the treatment facilities and any other information that the department may require to assure that the criteria of this rule are met. Approval of the engineering report is the approval to operate at the higher turbidity level.

(3) Enhanced Turbidity Requirements.

(3)(A) Beginning January 1, 2002 for systems serving ten thousand (10,000) or more people and beginning January 14, 2005 for systems serving less than ten thousand (10,000) people maximum turbidity levels and other requirements are as set forth in this section.

(**3**)(B) Maximum Turbidity Levels.

(3)(B)1. Turbidity must be equal to or less than 0.3 turbidity units in at least ninety-five percent (95%) of the measurements taken each month; and

(3)(B)2. There must be no more than one (1) turbidity unit in any one (1) measurement.

(3)(C) The frequency of sampling shall be as set forth in 10 CSR 60-4.080(3).

(3)(D) Reporting to the Department.

(3)(D)1. If at any time the turbidity exceeds one (1) nephelometric turbidity unit (NTU) in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the system must inform the department as soon as possible, but no later than the end of the next business day.

(3)(D)2. If any sample result exceeds five (5) turbidity units, the supplier of water must consult with the department as soon as practical, but no later than twenty-four (24) hours after the exceedance is known, except that the department may allow additional time in the event of extenuating circumstances beyond the control of the owner or operator, such as a natural disaster.

(3)(D)3. If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the department under subsection (3)(G) of this rule for filtration technologies other than conventional filtration treatment, the system must inform the department as soon as possible, but no later than the end of the next business day.

(3)(E) Filtration Sampling Requirements for Surface Water Systems

(3)(E)1. A public water system subject to the requirements of 10 CSR 60-4.055(6) that provides conventional filtration treatment must conduct continuous monitoring of turbidity for each individual filter using an approved method in 10 CSR 60-5.010 and must calibrate turbidimeters using the procedure specified by the manufacturer. Systems must record the results of individual filter monitoring every fifteen (15) minutes.

(3)(E)2. If there is a failure in the continuous turbidity monitoring equipment, the system must conduct grab sampling every four (4) hours in lieu of continuous monitoring, until the turbidimeter is repaired and back on-line. A system has a maximum of five (5) working days after failure in the continuous monitoring equipment to repair the equipment before the system is in violation. With department approval, systems serving less than ten thousand (10,000) people may be granted up to fourteen (14) days to repair the equipment before the system is in violation.

(3)(F) Lime Softening.

(3)(F)1. A system that uses lime softening may acidify representative samples prior to analysis using a protocol approved by the department.

(3)(F)2. Systems that use lime softening may apply to the department for alternative exceedance levels for the levels specified in 10 CSR 60-7.010(7)(B) if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

(3)(G) Filtration Technologies Other Than Conventional Filtration Treatment.

(3)(G)1. A public water system may use a filtration technology other than conventional filtration if it demonstrates to the department, using pilot plant studies or other means, that the alternative filtration technology, including direct filtration, in combination with disinfection treatment that meets the requirements of 10 CSR 60-4.055, consistently achieves 99.9 percent removal and/or

inactivation of *Giardia lamblia* cysts and 99.99 percent removal and/or inactivation of viruses, and ninety-nine percent (99%) removal of *Cryptosporidium* oocysts, and the department approves the use of the filtration technology.

(3)(G)2. For each approval, the department will set turbidity performance requirements that the system must meet at least ninety-five percent (95%) of the time and that the system may not exceed at any time at a level that consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts, 99.99 percent removal or inactivation of viruses, or both, and 99 percent removal of *Cryptosporidium* oocysts.

(4) Filter Backwash Recycling.

(4)(A) Applicability. All surface water and groundwater under the direct influence of surface water systems that use conventional filtration or direct filtration treatment and that recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes must meet the requirements of this section.

(4)(B) Reporting. A system must 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 must include, at a minimum, the following information:

(4)(B)1. 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

(4)(B)2. Typical recycle flow in gallons per minute (gpm), the highest observed plant flow experienced in the previous year (gpm), design flow for the treatment plant (gpm), and department-approved operating capacity for the plant where the department has made such determinations.

(4)(C) Treatment Technique Requirement. Any system that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must return these flows through the processes of a system's existing conventional or direct filtration system 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 must be completed not later than June 8, 2006.

(4)(D) Record Keeping. The system must collect and retain on file recycle flow information for review and evaluation by the department beginning June 8, 2004. This information shall include, but may not be limited to:

(4)(D)1. A copy of the recycle notification and information submitted to the department under subsection (4)(B) of this rule;

(4)(D)2. A list of all recycle flows and the frequency with which they are returned;

(4)(D)3. Average and maximum backwash flow rate through the filters and the average and maximum duration of the filter backwash process in minutes;

(4)(D)4. Typical filter run length and a written summary of how filter run length is determined;

(4)(D)5. The type of treatment provided for the recycle flow; and

(4)(D)6. Data on the physical dimensions of the equalization and/or treatment units, typical and maximum hydraulic loading rates, type of treatment chemicals used and average dose and frequency of use, and frequency at which solids are removed, if applicable.

10 CSR 60-4.052 Source Water Monitoring And Enhanced Treatment Requirements

PURPOSE: This rule establishes source water monitoring requirements and enhanced treatment for Cryptosporidium for surface water systems and systems under the direct influence of surface water. These requirements are in addition to requirements for filtration and disinfection in <u>10</u> <u>CSR 60-4.050</u> and <u>10 CSR 60-4.055</u>. This rule adopts the requirements found in subpart W of <u>40</u> <u>CFR part 141</u>.

(1) Enhanced Treatment for *Cryptosporidium* General Requirements.

(1)(A) The requirements of this rule are national primary drinking water regulations. The regulations in this rule establish or extend treatment technique requirements in lieu of maximum contaminant levels for *Cryptosporidium*. These requirements are in addition to requirements for filtration and disinfection in 10 CSR 60-4.050 and 10 CSR 60-4.055.

(1)(B) Applicability.

(1)(B)1. The requirements of this rule apply to all public water systems supplied by a surface water source and public water systems supplied by a ground water source under the direct influence of surface water.

(1)(B)2. Wholesale systems, as defined in 10 CSR 60-2.015, must comply with the requirements of this rule based on the population of the largest system in the combined distribution system.

(1)(C) Requirements. Systems subject to this rule must comply with the following requirements:

(1)(C)1. Systems must conduct an initial and a second round of source water monitoring for each plant that treats a surface water or ground water under the direct influence of surface water (GWUDISW) source. This monitoring may include sampling for *Cryptosporidium*, *E. coli*, and turbidity as described in sections (2)-(6) of this rule, to determine what level, if any, of additional *Cryptosporidium* treatment they must provide;

(1)(C)2. Systems that plan to make a significant change to their disinfection practice must develop disinfection profiles and calculate disinfection benchmarks, as described in sections (8) and (9) of this rule;

(1)(C)3. Filtered systems must determine their *Cryptosporidium* treatment bin classification as described in section (10) of this rule and provide additional treatment for *Cryptosporidium*, if required, as described in section (11) of this rule. Filtered systems must implement *Cryptosporidium* treatment according to the schedule in section (12) of this rule;

(1)(C)4. Systems required to provide additional treatment for *Cryptosporidium* must implement microbial toolbox options that are designed and operated as described in sections (13)-(18) of this rule; and

(1)(C)5. Systems must comply with the applicable record-keeping and reporting requirements described in 10 CSR 60-7.010 and 10 CSR 60-9.010.

(2) Source Water Monitoring Requirements.

(2)(A) Initial Round of Source Water Monitoring. Systems must conduct the following monitoring on the schedule in subsection (2)(C) of this rule unless they meet the monitoring exemption criteria in subsection (2)(D) of this rule.

(2)(A)1. Filtered systems serving at least ten thousand (10,000) people must sample their source water for *Cryptosporidium*, *E. coli*, and turbidity at least monthly for twenty-four (24) months.

(2)(A)2. Filtered systems serving fewer than ten thousand (10,000) people must sample their source water for *E. coli* at least once every two (2) weeks for twelve (12) months.

(2)(A)3. A filtered system serving fewer than ten thousand (10,000) people may avoid *E. coli* monitoring if the system notifies the department that it will monitor for *Cryptosporidium* as described in paragraph (2)(A)4. of this rule. The system must notify the department no later than three (3) months prior to the date the system is otherwise required to start *E. coli* monitoring under subsection (2)(C) of this rule.

(2)(A)4. Filtered systems serving fewer than ten thousand (10,000) people must sample their source water for *Cryptosporidium* at least twice per month for twelve (12) months or at least monthly for twenty-four (24) months if they meet one (1) of the following, based on monitoring conducted under paragraphs (2)(A)2. and 3. of this rule.

(2)(A)4.A. For systems using lake or reservoir sources, the annual mean *E. coli* concentration is greater than 10 *E. coli*/100 mL.

(2)(A)4.B. For systems using flowing stream sources, the annual mean *E. coli* concentration is greater than 50 *E. coli*/100 mL.

(2)(A)4.C. The system does not conduct *E. coli* monitoring as described in paragraphs (2)(A)2. and 3. of this rule.

(2)(A)4.D. Systems using ground water under the direct influence of surface water (GWUDISW) must comply with the requirements of paragraph (2)(A)4. of this rule based on the *E. coli* level that applies to the nearest surface water body. If no surface water body is nearby, the system must comply based on the requirements that apply to systems using lake/reservoir sources.

(2)(A)5. For filtered systems serving fewer than ten thousand (10,000) people, the department may approve monitoring for an indicator other than *E. coli* under paragraph (2)(A)2. of this rule. The department also may approve an alternative to the *E. coli* concentration in subparagraph (2)(A)4.A., B., or D. of this rule to trigger *Cryptosporidium* monitoring. This approval by the department must be provided to the system in writing and must include the basis for the department's determination that the alternative indicator and/or trigger level will provide a more accurate identification of whether a system will exceed the Bin 1 *Cryptosporidium* level in section (10) of this rule.

(2)(A)6. Systems may sample more frequently than required under this section if the sampling frequency is evenly spaced throughout the monitoring period.

(2)(B) Second Round of Source Water Monitoring. Systems must conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in subsection (2)(A) of this rule, unless they meet the monitoring exemption criteria in subsection (2)(D) of this rule. Systems must conduct this monitoring on the schedule in subsection (2)(C) of this rule.

(2)(C) Monitoring Schedule. Systems must begin the monitoring required in subsection (2)(A) and subsection (2)(B) of this rule no later than the month beginning with the date listed in this table-

+	+	+
Systems that serve:	Must begin the first round of	And
gourge water monitoring no	source water monitoring no later	of
than the month beginning:	than the month beginning:	later
+ At least 100,000 people 1, 2015	October 1, 2006	+
From 50,000 to 99,999 October 1, 2015	April 1, 2007	
+		

Source Water Monitoring Starting Dates Table

Updated by Janelle Lemen 12/10/2012 3:20 PM

| From 10,000 to 49,999 | April 1, 2008 October 1, 2016 | ----+ Fewer than 10,000 and monitor | October 1, 2008 October 1, 2017 | | for E. coli -----+ | Fewer than 10,000 and monitor | April 1, 2010 | April 1, 2019 for Cryptosporidium (Applies to filtered systems that meet the conditions of paragraph (2)(A)3. of this rule.) -----+

(2)(D) Monitoring Avoidance.

(2)(D)1. Filtered systems are not required to conduct source water monitoring under this rule if the system will provide a total of at least 5.5-log of treatment for *Cryptosporidium*, equivalent to meeting the treatment requirements of Bin 4 in section (11) of this rule.

(2)(D)2. If a system chooses to provide the level of treatment in paragraph (2)(D)1. of this rule as applicable, rather than start source water monitoring, the system must notify the department in writing no later than the date the system is otherwise required to submit a sampling schedule for monitoring under section (3) of this rule. Alternatively, a system may choose to stop sampling at any point after it has initiated monitoring if it notifies the department in writing that it will provide this level of treatment. Systems must install and operate technologies to provide this level of treatment by the applicable treatment compliance date in section (12) of this rule.

(2)(E) Plants Operating Only Part of the Year. Systems with plants that operate for only part of the year must conduct source water monitoring in accordance with this rule, but with the following modifications:

(2)(E)1. Systems must sample their source water only during the months that the plant operates unless the department specifies another monitoring period based on plant operating practices.

(2)(E)2. Systems with plants that operate less than six (6) months per year and that monitor for *Cryptosporidium* must collect at least six (6) *Cryptosporidium* samples per year during each of two (2) years of monitoring. Samples must be evenly spaced throughout the period the plant operates.

(2)(F) New Source Requirements.

(2)(F)1. A system that begins using a new source of surface water or GWUDISW after the system is required to begin monitoring under subsection (2)(C) of this rule must monitor the new source on a schedule the department approves. Source water monitoring must meet the requirements of this rule. The system must also meet the bin classification and *Cryptosporidium* treatment requirements of sections (10) and (11) of this rule, as applicable, for the new source on a schedule the department approves.

(2)(F)2. The requirements of subsection (2)(F) of this rule apply to surface water systems and ground water under the direct influence of surface water systems that begin operation after the monitoring start date applicable to the system's size under subsection (2)(C) of this rule.

(2)(F)3. The system must begin a second round of source water monitoring no later than six (6) years following initial bin classification under section (10) of this rule.

(2)(G) Failure to collect any source water sample required under this section in accordance with the sampling schedule, sampling location, analytical method, approved laboratory, and reporting requirements of sections (3) through (6) of this rule is a monitoring violation.

(2)(H) Grandfathering Monitoring Data. Systems may use (i.e., may "grandfather") monitoring data collected prior to the applicable monitoring start date in subsection (2)(C) to meet the initial source water monitoring requirements in subsection (2)(A) of this rule. Grandfathered data may substitute for an equivalent number of months at the end of the monitoring period. All data submitted under subsection (2)(H) must meet the requirements in section (7) of this rule.

(3) Sampling Schedules.

(3)(A) Systems required to conduct source water monitoring under section (2) of this rule must submit a sampling schedule that specifies the calendar dates when the system will collect each required sample.

(3)(A)1. Systems must submit sampling schedules no later than three (3) months prior to the applicable date listed in subsection (2)(C) of this rule for each round of required monitoring.

(3)(A)2. Systems serving at least ten thousand (10,000) people must submit their sampling schedule for the initial round of source water monitoring under subsection (2)(A) of this rule to the Environmental Protection Agency (EPA) electronically at the web address specified by the EPA for this purpose. If a system is unable to submit the sampling schedule electronically, the system may use an alternative approach for submitting the sampling schedule that the EPA approves.

(3)(A)3. Systems serving fewer than ten thousand (10,000) people must submit their sampling schedules for the initial round of source water monitoring in subsection (2)(A) of this rule to the department.

(3)(A)4. Systems must submit sampling schedules for the second round of source water monitoring in subsection (2)(B) of this rule to the department.

(3)(A)5. If the EPA or the department does not respond to a system regarding its sampling schedule, the system must sample at the reported schedule.

(3)(B) Systems must collect samples within two (2) days before or two (2) days after the dates indicated in their sampling schedule (that is, within a five (5)-day period around the schedule date) unless one (1) of the conditions of paragraph (3)(B)1. or 2. applies.

(3)(B)1. If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided and causes the system to be unable to sample in the scheduled five (5)-day period, the system must sample as close to the scheduled date as is feasible unless the department approves an alternative sampling date. The system must submit an explanation for the delayed sampling date to the department concurrent with the shipment of the sample to the laboratory.

(3)(B)2. If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method requirements, including the quality control requirements in 10 CSR 60-5.010, or the failure of an approved laboratory to analyze the sample, then the system must collect a replacement sample. The system must collect the replacement sample not later than twenty-one (21) days after receiving information that an analytical result cannot be reported for the scheduled date unless the system demonstrates that collecting a replacement sample within this time frame is not feasible or the department approves an alternative resampling date. The system must submit an explanation for the delayed sampling date to the department concurrent with the shipment of the sample to the laboratory.

(3)(C) Systems that fail to meet the criteria of subsection (3)(B) of this rule for any source water sample required under section (2) of this rule must revise their sampling schedules to add dates for collecting all missed samples. Systems must submit the revised schedule to the department for approval prior to when the system begins collecting the missed samples.

(4) Sampling Locations.

(4)(A) Systems required to conduct source water monitoring under section (2) of this rule must collect samples for each plant that treats a surface water or GWUDISW source. Where multiple plants draw water from the same influent, such as the same pipe or intake, the department may approve one (1) set of monitoring results to be used to satisfy the requirements of section (2) of this rule for all plants.

(4)(B) Systems must collect source water samples prior to chemical treatment, such as coagulants, oxidants, and disinfectants, unless the system meets the condition of paragraph (4)(B)1. of this rule.

(4)(B)1. The department may approve a system to collect a source water sample after chemical treatment. To grant this approval, the department must determine that collecting a sample prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.
(4)(C) Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition.

(4)(D) Bank Filtration Requirements.

(4)(D)1. Systems that receive *Cryptosporidium* treatment credit for bank filtration under 10 CSR <u>60-4.050(3)(G)</u>, as applicable, must collect source water samples in the surface water prior to bank filtration.

(4)(D)2. Systems that use bank filtration as pretreatment to a filtration plant must collect source water samples from the well (i.e., after bank filtration). Use of bank filtration during monitoring must be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration under subsection (15)(C) of this rule.

(4)(E) Multiple Sources. Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and ground water sources, must collect samples as specified in paragraph (4)(E)1. or 2. of this rule. The use of multiple sources during monitoring must be consistent with routine operational practice.

(4)(E)1. If a sampling tap is available where the sources are combined prior to treatment, systems must collect samples from the tap.

(4)(E)2. If a sampling tap where the sources are combined prior to treatment is not available, systems must collect samples at each source near the intake on the same day and must follow either subparagraph (4)(E)2.A or B. of this rule for sample analysis.

(4)(E)2.A. Systems may take composite samples from each source into one (1) sample prior to analysis. The volume of sample from each source must be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.

(4)(E)2.B. Systems may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average must be calculated by multiplying the analysis result for each source by the fraction the source contributed to total plant flow at the time the sample was collected and then summing these values.

(4)(F) Additional Requirements. Systems must submit a description of their sampling location(s) to the department at the same time as the sampling schedule required under section (3) of this rule. This description must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including pretreatment, points of chemical treatment, and filter backwash recycle. If the department does not respond to a system regarding sampling location(s), the system must sample at the reported location(s).

(5) Approved Laboratories.

(5)(A) *Cryptosporidium*. Systems must have *Cryptosporidium* samples analyzed by a laboratory that is approved under the EPA's Laboratory Quality Assurance Evaluation Program for Analysis of *Cryptosporidium* in Water or a laboratory that has been certified for *Cryptosporidium* analysis by an equivalent state laboratory certification program.

(5)(B) *E. coli*. Any laboratory certified by the EPA, the National Environmental Laboratory Accreditation Conference, or the department for total coliform or fecal coliform analysis under 10 CSR 60-5.010(3) is approved for *E. coli* analysis under this rule when the laboratory uses the same technique for *E. coli* that the laboratory uses for 10 CSR 60-5.010(3).

(5)(C) Turbidity. Measurements of turbidity must be made by a party approved by the department.

(6) Reporting Source Water Monitoring Results.

(6)(A) Systems must report results from the source water monitoring required under section (2) of this rule no later than ten (10) days after the end of the first month following the month when the sample is collected.

(6)(B) All systems serving at least ten thousand (10,000) people must report the results from the initial source water monitoring required under subsection (2)(A) of this rule to the EPA electronically at the web address specified by the EPA for this purpose. If a system is unable to report monitoring results electronically, the system may use an alternative approach for reporting monitoring results that the EPA approves.

(6)(C) Systems serving fewer than ten thousand (10,000) people must report results from the initial source water monitoring required under subsection (2)(A) of this rule to the department.

(6)(D) All systems must report results from the second round of source water monitoring required under subsection (2)(B) of this rule to the department.

(6)(E) Systems must report the following applicable information for the source water monitoring required under section (2) of this rule:

(6)(E)1. For each Cryptosporidium analysis-

(6)(E)1.A. Systems must report the following data elements:

(6)(E)1.A.(I) Public water system (PWS) ID;

(6)(E)1.A.(II) Facility ID;

(6)(E)1.A.(III) Sample collection date;

(6)(E)1.A.(IV) Sample type (field or matrix spike);

(6)(E)1.A.(V) Sample volume filtered (L), to nearest;

(6)(E)1.A.(VI) Was one hundred percent (100%) of filtered volume examined; and

(6)(E)1.A.(VII) Number of oocysts counted;

(6)(E)1.B. For matrix spike samples, systems must also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples;

(6)(E)1.C. For samples in which less than ten (10) L is filtered or less than one hundred percent (100%) of the sample volume is examined, systems must also report the number of filters used and the packed pellet volume; and

(6)(E)1.D. For samples in which less than one hundred percent (100%) of sample volume is examined, systems must also report the volume of resuspended concentrate and volume of this resuspension processed through immunomagnetic separation; and

(6)(E)2. For each *E. coli* analysis, systems must report the following data elements:

(6)(E)2.A. PWS ID;

(6)(E)2.B. Facility ID;

(6)(E)2.C. Sample collection date;

(6)(E)2.D. Analytical method number;

(6)(E)2.E. Method type;

(6)(E)2.F. Source type (flowing stream, lake/reservoir, GWUDISW);

(6)(E)2.G. E. coli/100 mL; and

(6)(E)2.H. Turbidity. (Systems serving fewer than ten thousand (10,000) people that are not required to monitor for turbidity under section (2) of this rule are not required to report turbidity with their *E. coli* results.)

(7) Grandfathering Previously Collected Data.

(7)(A) Systems may use previously collected data to comply with the initial source water monitoring requirements of subsection (2)(A) by grandfathering sample results that were collected before the system is required to begin monitoring. To be grandfathered, the sample results and analysis must meet the criteria in this section and must be approved by the department. A filtered system may grandfather *Cryptosporidium* samples to meet the requirements of subsection (2)(A) when the system does not have corresponding *E. coli* and turbidity samples. A system that grandfathers *Cryptosporidium* samples without *E. coli* and

turbidity samples is not required to collect *E. coli* and turbidity samples when the system completes the requirements for *Cryptosporidium* monitoring under subsection (2)(A).

(7)(B) *E. coli* Sample Analysis. The analysis of *E. coli* samples must meet the analytical method and approved laboratory requirements of 10 CSR 60-5.010(3) and section (5) of this rule.

(7)(C) *Cryptosporidium* Sample Analysis. The analysis of *Cryptosporidium* samples must meet the criteria in this subsection.

(7)(C)1. Laboratories must have analyzed *Cryptosporidium* samples using one (1) of these analytical methods:

(7)(C)1.A. Method 1623: *Cryptosporidium and Giardia in Water by Filtration/IMS/FA*, 2005, United States Environmental Protec-tion Agency, EPA-815-R-05-002;

(7)(C)1.B. Method 1622: *Cryptosporidium in Water by Filtration/IMS/FA*, 2005, United States Environmental Protection Agency, EPA-815-R-05-001;

(7)(C)1.C. Method 1623: *Cryptosporidium and Giardia in Water by Filtration/IMS/FA*, 2001, United States Environmental Protec-tion Agency, EPA-821-R-01-025;

(7)(C)1.D. Method 1622: *Cryptosporidium in Water by Filtration/IMS/FA*, 2001, United States Environmental Protection Agency, EPA-821-R-01-026;

(7)(C)1.E. Method 1623: *Cryptosporidium and Giardia in Water by Filtration/IMS/FA*, 1999, United States Environmental Protection Agency, EPA-821-R-99-006; and

(7)(C)1.F. Method 1622: *Cryptosporidium in Water by Filtration/IMS/FA*, 1999, United States Environmental Protection Agency, EPA-821-R-99-001.

(7)(C)2. For each *Cryptosporidium* sample, the laboratory analyzed at least ten (10) L of sample or at least two (2) mL of packed pellet or as much volume as could be filtered by two (2) filters that EPA approved for the methods listed in paragraph (7)(C)1.

(7)(D) Sampling Location. The sampling location must meet the conditions in section (4) of this rule.

(7)(E) Sampling Frequency. *Cryptosporidium* samples were collected no less frequently than each calendar month on a regular schedule, beginning no earlier than January 1999. Sample collection intervals may vary for the conditions specified in paragraphs (3)(B)1 and 2. of this rule if the system provides documentation of the condition when reporting monitoring results.

(7)(E)1. The department may approve grandfathering of previously collected data where there are time gaps in the sampling frequency if the system conducts additional monitoring the department specifies to ensure that the data used to comply with the initial source water

monitoring requirements of subsection (2)(A) of this rule are seasonally representative and unbiased.

(7)(E)2. Systems may grandfather previously collected data where the sampling frequency varied within each month. If the *Cryptosporidium* sampling frequency varied, systems must follow the monthly averaging procedure in paragraph (10)(B)5. of this rule, as applicable, when calculating the bin classification for filtered systems.

(7)(F) Reporting Monitoring Results for Grandfathering. Systems that request to grandfather previously collected monitoring results must report the following information by the applicable dates listed in this subsection. Systems serving at least ten thousand (10,000) people must report this information to the EPA unless the department approves reporting to the department rather than the EPA. Systems serving fewer than ten thousand (10,000) people must report this information to the department.

(7)(F)1. Systems must report that they intend to submit previously collected monitoring results for grandfathering. This report must specify the number of previously collected results the system will submit, the dates of the first and last sample, and whether a system will conduct additional source water monitoring to meet the requirements of subsection (2)(A) of this rule. Systems must report this information no later than the date the sampling schedule under section (3) of this rule is required.

(7)(F)2. Systems must report previously collected monitoring results for grandfathering, along with the associated documentation listed in the following subparagraphs no later than two (2) months after the applicable date listed in subsection (2)(C) of this rule:

(7)(F)2.A. For each sample result, systems must report the applicable data elements in section (6) of this rule;

(7)(F)2.B. Systems must certify that the reported monitoring results include all results the system generated during the time period beginning with the first reported result and ending with the final reported result. This applies to samples that were collected from the sampling location specified for source water monitoring under this rule, not spiked, and analyzed using the laboratory's routine process for the analytical methods listed in this section;

(7)(F)2.C. Systems must certify that the samples were representative of a plant's source water(s) and the source water(s) have not changed. Systems must report a description of the sampling location(s), which must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including points of chemical addition and filter backwash recycle; and

(7)(F)2.D. For *Cryptosporidium* samples, the laboratory or laboratories that analyzed the samples must provide a letter certifying that the quality control criteria specified in the methods listed in paragraph (7)(C)1. were met for each sample batch associated with the reported results. Alternatively, the laboratory may provide bench sheets and sample examination report forms for

each field, matrix spike, Initial Precision and Recovery (IPR), Ongoing Precision and Recovery (OPR), and method blank sample associated with the reported results.

(7)(G) If the department determines that a previously collected data set submitted for grandfathering was generated during source water conditions that were not normal for the system, such as a drought, the department may disapprove the data. Alternatively, the department may approve the previously collected data if the system reports additional source water monitoring data, as determined by the department, to ensure that the data set used under section (10) of this rule represents average source water conditions for the system.

(7)(H) If a system submits previously collected data that fully meet the number of samples required for initial source water monitoring under subsection (2)(A) of this rule and some of the data are rejected due to not meeting the requirements of this section, systems must conduct additional monitoring to replace rejected data on a schedule the department approves. Systems are not required to begin this additional monitoring until two (2) months after notification that data have been rejected and additional monitoring is necessary.

(8) Disinfection Profiling and Benchmarking Requirements.

(8)(A) Following the completion of initial source water monitoring, a system that plans to make a significant change to its disinfection practice, as defined in this section, must develop disinfection profiles and calculate disinfection benchmarks for *Giardia lamblia* and viruses as described in section (9) of this rule. Prior to changing the disinfection practice, the system must notify the department and must include in this notice the following information:

(8)(A)1. A completed disinfection profile and disinfection benchmark for Giardia lamblia and viruses as described in section (9) of this rule;

(8)(A)2. A description of the proposed change in disinfection practice; and

(8)(A)3. An analysis of how the proposed change will affect the current level of disinfection.

(8)(B) Significant changes to disinfection practice are defined as follows:

(8)(B)1. Changes to the point of disinfection;

(8)(B)2. Changes to the disinfectant(s) used in the treatment plant;

(8)(B)3. Changes to the disinfection process; or

(8)(B)4. Any other modification identified by the department as a significant change to disinfection practice.

(9) Developing the Disinfection Profile and Benchmark.

(9)(A) Systems required to develop disinfection profiles under section (8) of this rule must follow the requirements of this section. Systems must monitor at least weekly for a period of twelve (12) consecutive months to determine the total log inactivation for Giardia lamblia and viruses. If systems monitor more frequently, the monitoring frequency must be evenly spaced. Systems that operate for fewer than twelve (12) months per year must monitor weekly during the period of operation. Systems must determine log inactivation for *Giardia lamblia* through the entire plant, based on $CT_{99.9}$ values in the *Guidance Manual for Surface Water System Treatment Requirements*, January 1992, as applicable. Systems must determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the department.

(9)(B) Systems with a single point of disinfectant application prior to the entrance to the distribution system must conduct the monitoring specified here. Systems with more than one (1) point of disinfectant application must conduct this monitoring for each disinfection segment. Systems must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in 10 CSR 60- 5.010.

(9)(B)1. For systems using a disinfectant other than ultraviolet light (UV), the temperature of the disinfected water must be measured at each residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the department.

(9)(B)2. For systems using chlorine, the pH of the disinfected water must be measured at each chlorine residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the department.

(9)(B)3. The disinfectant contact time(s), (t), must be determined during peak hourly flow.

(9)(B)4. The residual disinfectant concentration(s), (C), of the water before or at the first customer and prior to each additional point of disinfectant application must be measured during peak hourly flow.

(9)(C) In lieu of conducting new monitoring under subsection (9)(B), systems may elect to meet the requirements of paragraph (9)(C)1. or 2.

(9)(C)1. Systems that have at least one (1) year of existing data that are substantially equivalent to data collected under the provisions of subsection (9)(B) may use these data to develop disinfection profiles as specified in this section if the system has neither made a significant change to its treatment practice nor changed sources since the data were collected. Systems may develop disinfection profiles using up to three (3) years of existing data.

(9)(C)2. Systems may use disinfection profile(s) developed under 10 CSR 60-4.055(6)(C) in lieu of developing a new profile if the system has neither made a significant change to its treatment practice nor changed sources since the profile was developed. Systems that have not developed a virus profile under 10 CSR 60-4.055(6)(C) must develop a virus profile using the same monitoring data on which the *Giardia lamblia* profile is based.

(9)(D) Systems must calculate the total inactivation ratio for *Giardia lamblia* as specified here.

(9)(D)1. Systems using only one (1) point of disinfectant application may determine the total inactivation ratio for the disinfection segment based on either of the methods in subparagraph (9)(D)1.A. or B.

(9)(D)1.A. Determine one (1) inactivation ratio $(CT_{calc}/CT_{99.9})$ before or at the first customer during peak hourly flow.

(9)(D)1.B. Determine successive $CT_{calc}/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. The system must calculate the total inactivation ratio by determining $(CT_{calc}/CT_{99.9})$ for each sequence and then adding the (CTcalc/ CT99.9) values together to determine (? $(CT_{calc}/CT_{99.9})$).

(9)(D)2. Systems using more than one (1) point of disinfectant application before the first customer must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CT_{calc}/CT_{99.9}$) value of each segment and (? ($CT_{calc}/CT_{99.9}$)) must be calculated using the method in subparagraph (9)(D)1.A. of this section.

(9)(D)3. The system must determine the total logs of inactivation by multiplying the value calculated in paragraph (9)(D)1. or 2. by three (3).

(9)(D)4. Systems must calculate the log of inactivation for viruses using a protocol approved by the department.

(9)(E) Systems must use the procedures specified in paragraphs (9)(E)1 and 2. to calculate a disinfection benchmark.

(9)(E)1. For each year of profiling data collected and calculated under subsections (9)(A)-(D) of this rule, systems must determine the lowest mean monthly level of both Giardia lamblia and virus inactivation. Systems must determine the mean Giardia lamblia and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly Giardia lamblia and virus log inactivation by the number of values calculated for that month.

(9)(E)2. The disinfection benchmark is the lowest monthly mean value (for systems with one (1) year of profiling data) or the mean of the lowest monthly mean values (for systems with more than one (1) year of profiling data) of Giardia lamblia and virus log inactivation in each year of profiling data.

(10) Bin Classification for Filtered Systems.

(10)(A) Following completion of the initial round of source water monitoring required under subsection (2)(A) of this rule, filtered systems must calculate an initial *Cryptosporidium* bin concentration for each plant for which monitoring was required. Calculation of the bin concentration must use the *Cryptosporidium* results reported under subsection (2)(A) of this rule and must follow the procedures in subsection (10)(B) of this rule.

(10)(B) Procedures for Bin Determination.

(10)(B)1. For systems that collect a total of at least forty-eight (48) samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

(10)(B)2. For systems that collect a total of at least twenty-four (24) samples, but not more than forty-seven (47) samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any twelve (12) consecutive months during which *Cryptosporidium* samples were collected.

(10)(B)3. For systems that serve fewer than ten thousand (10,000) people and monitor for *Cryptosporidium* for only one (1) year (that is, collect twenty-four (24) samples in twelve (12) months), the bin concentration is equal to the arithmetic mean of all sample concentrations.

(10)(B)4. For systems with plants operating only part of the year that monitor fewer than twelve (12) months per year under subsection (2)(E) of this rule, the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of *Cryptosporidium* monitoring.

(10)(B)5. If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification in paragraphs (10)(B)1.-5. of this rule.

(10)(C) Filtered systems must determine their initial bin classification from the following table and using the *Cryptosporidium* bin concentration calculated under subsections (10)(A) and (B).

Bin Classification Table for Filtered Systems

+	+						
For systems that are:	With a <i>Cryptosporidium</i> bin concentration						
	(based on calculations in subsection (10)(A)						
	or (10)(B) as applicable) of: 						
+	-+						
Required to monitor for Bin 1	+ Cryptosporidium <0.075 oocyst/L 						
Cryptosporidium under	+						
section (2) of this rule. oocysts/L Bin 2	0.075 oocysts/L ≤ Cryptosporidium <1.0 						
	+						
 oocysts/L Bin 3	1.0 oocysts/L < Cryptosporidium <3.0						
	+						

(10)(D) Following completion of the second round of source water monitoring required under subsection (2)(B), filtered systems must recalculate their *Cryptosporidium* bin concentration using the *Cryptosporidium* results reported under subsection (2)(B) and following the procedures in paragraphs (10)(B)1. through 4. Systems must then redetermine their bin classification using this bin concentration and the table in subsection (10)(C) of this rule.

(10)(E) Reporting Bin Classification Requirements.

(10)(E)1. Filtered systems must report their initial bin classification under subsection (10)(C) to the department for approval no later than six (6) months after the system is required to complete initial source water monitoring based on the schedule in subsection (2)(C) of this rule.

(10)(E)2. Systems must report their bin classification under subsection (10)(D) to the department for approval no later than six (6) months after the system is required to complete the second round of source water monitoring based on the schedule in subsection (2)(C) of this rule.

(10)(E)3. The bin classification report to the department must include a summary of source water monitoring data and the calculation procedure used to determine bin classification.

(10)(F) Failure to comply with the conditions of subsection (10)(E) of this rule is a violation of the treatment technique requirement.

(11) Additional Cryptosporidium Treatment Requirements.

(11)(A) Filtered systems must provide the level of additional treatment for *Cryptosporidium* specified in this subsection based on their bin classification as determined under section (10) of this rule and according to the schedule in section (12) of this rule.

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+----+

| If the system bin | And the system uses the following filtration treatment

in full compliance with |

| classification is: | <u>10 CSR 60-4.050</u>, <u>10 CSR 60-4.055</u>, and <u>10 CSR 60-7.010</u>

(as applicable), then the |
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| additional Cryptosporidium treatment requirements are: ---+-----+ Conventional | Direct Filtration | Slow sand or Alternative filtration | filtration treatment | diatomaceous earth | technologies (including softening) filtration _____+ -----+ | Bin 1 | No additional additional | No additional | No additional | No | | treatment -+----+ | 1-log treatment Bin 2 | 1.5-log treatment | 1-log treatment | As determined by the | department such that the total Cryptosporidium removal and inactivation is at least 4.0-log. _____ Bin 32-log treatmenttreatmentAs determined by the | 2.5-log treatment | 2-log department such that the total Cryptosporidium removal and inactivation is at least 5.0-log. | ----+ Bin 4 | 2.5-log treatment | 3-log treatment | 2.5-log treatment | As determined by the | department such that the total Cryptosporidium | removal and inactivation is at least 5.5-log. _____

(11)(B) Filtered systems must use one (1) or more of the treatment and management options listed in section (13) of this rule, termed the Microbial Toolbox, to comply with the additional *Cryptosporidium* treatment required in subsection (11)(A) of this rule.

(11)(B)1. Systems classified in Bin 3 and Bin 4 must achieve at least 1-log of the additional *Cryptosporidium* treatment required under subsection (11)(A) of this rule using either one (1) or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV, as described in sections (14) through (18) of this rule.

(11)(C) Failure by a system in any month to achieve treatment credit by meeting criteria in sections (14) through (18) of this rule for microbial toolbox options that is at least equal to the level of treatment required in subsection (11)(A) of this rule is a violation of the treatment technique requirement.

(11)(D) If the department determines during a sanitary survey or an equivalent source water assessment that, after a system completed the monitoring conducted under subsection (2)(A) or (2)(B) of this rule, significant changes occurred in the system's watershed that could lead to increased contamination of the source water by *Cryptosporidium*, the system must take actions specified by the department to address the contamination. These actions may include additional source water monitoring and/or implementing microbial toolbox options listed in section (13) of this rule.

(12) Schedule for Compliance With Cryptosporidium Treatment Requirements.

(12)(A) Following initial bin classification under subsection (10)(C), filtered systems must provide the level of treatment for *Cryptosporidium* required under section (11) according to the following *Cryptosporidium* treatment compliance dates.

++ Cryptospor. +	<i>idium</i> Treatment Compliance Dates Table
<pre>>+ Systems that serve: treatment dates, except additional two (2) requirement for </pre>	<pre> Must comply with Cryptosporidium requirements no later than the following that the department may allow up to an years for complying with the treatment systems making capital improvements:</pre>
+ 1. At least 100,000 people 	April 1, 2012
+	

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2. From 50,000 to 99,999 people | October 1, 2012
+-----+
3. From 10,000 to 49,999 people | October 1, 2013
+-----+
4. Fewer than 10,000 people | October 1, 2014
+-----+
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(12)(B) If the bin classification for a filtered system changes following the second round of source water monitoring, as determined under subsection (10)(D) of this rule, the system must provide the level of treatment for *Cryptosporidium* required under section (11) of this rule on a schedule the department approves.

(13) Microbial Toolbox Options for Meeting Cryptosporidium Treatment Requirements.

(13)(A) Systems receive the treatment credit listed in the table in subsection (13)(B) of this rule by meeting the conditions for microbial toolbox options described in sections (14) through (18) of this rule. Systems apply these treatment credits to meet the treatment requirements in section (11) of this rule, as applicable.

(13)(B) The following table summarizes options in the microbial toolbox:

Microbial Toolbox Summary Table: Options, Treatment Credit, and Criteria

-----+ | Toolbox Option | Cryptosporidium treatment credit with design and implementation criteria _____ Source Protection and Management Toolbox Options +------_____ | Watershed control program | 0.5-log credit for department-approved program comprising required elements, annual program status report to the department, and regular watershed survey. Specific criteria are in subsection (14)(A). -----+ | Alternative source/intake | No prescribed credit. Systems may conduct simultaneous monitoring for treatment | management | bin classification at alternative intake locations or under alternative intake | management strategies. Specific criteria are
in subsection (14)(B).

-----+ Pre-Filtration Toolbox Options -----+ | Presedimentation basin with | 0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in coagulation turbidity or alternative departmentapproved performance criteria. To be eligible, basins must be operated | continuously with coagulant addition and all plant flow must pass through basins. Specific criteria are in subsection (15)(A). _____ ----+ | Two-stage lime softening | 0.5-log credit for two-stage softening where chemical addition and hardness | precipitation occur in both stages. All plant flow must pass through both stages. | Single-stage softening is credited as equivalent to conventional treatment. Specific criteria are in subsection (15)(B). -----+ | 0.5-log credit for 25-foot setback; 1.0-log Bank filtration credit for 50-foot setback; aquifer must be unconsolidated sand containing at least 10 percent fines; average turbidity in wells must be less than 1 NTU. Systems using wells followed by filtration when | conducting source water monitoring must sample the well to determine bin classification and are not eligible for additional credit. Specific criteria are in subsection (15)(C). _____ _____ Treatment Performance Toolbox Options -----+ | Combined filter | 0.5-log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each performance month. Specific criteria are in subsection (16)(A). ------| Individual filter | 0.5-log credit (in addition to 0.5-log combined filter performance credit) if performance | individual filter effluent turbidity is less

than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3 NTU in two consecutive measurements in any filter. Specific criteria are in subsection _____ -----+ Demonstration of Credit awarded to unit process or treatment train based on a demonstration to the | performance | department with a department-approved protocol. Specific criteria are in subsection (16)(C). _____ -----+ | Bag or cartridge filters | Up to 2-log credit based on the removal efficiency demonstrated during challenge (individual filters) | testing with a 1.0-log factor of safety. Specific criteria are in subsection (17)(A). ------| Bag or cartridge filters | Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety. (in series) Specific criteria are in subsection (17)(A). -----+ Membrane filtration Log credit equivalent to removal efficiency demonstrated in challenge test for | device if supported by direct integrity testing. Specific criteria are in subsection (17)(B). _____ Second stage filtration | 0.5-log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter. Specific criteria are in subsection (17)(C). +----------+ Slow sand filtration | 2.5-log credit as a secondary filtration step; 3.0-log credit as a primary filtration process. No prior chlorination for either option. Specific criteria are in subsection (17)(D). -----+ Inactivation Toolbox Options _____ | Chlorine dioxide | Log credit based on measured CT in relation to CT table. Specific criteria in subsection (18)(B).

-----+ | Log credit based on measured CT in relation l Ozone to CT table. Specific criteria in subsection (18)(B). +-----------+ Ultra-violet Log credit based on validated UV dose in relation to UV dose table; reactor | validation testing required to establish UV dose and associated operating | conditions. Specific criteria in subsection (18)(D). ------

(14) Source Toolbox Components.

(14)(A) Watershed Control Program. Systems receive 0.5-log *Cryptosporidium* treatment credit for implementing a watershed control program that meets the requirements of this section.

(14)(A)1. Systems that intend to apply for the watershed control program credit must notify the department of this intent no later than two (2) years prior to the treatment compliance date applicable to the system in section (12) of this rule.

(14)(A)2. Systems must submit to the department a proposed watershed control plan no later than one (1) year before the applicable treatment compliance date in section (12) of this rule. The department must approve the watershed control plan for the system to receive watershed control program treatment credit. The watershed control plan must include the elements in subparagraphs (14)(A)2.A.-D. of this rule.

(14)(A)2.A. Identification of an "area of influence" outside of which the likelihood of *Cryptosporidium* or fecal contamination affecting the treatment plant intake is not significant. This is the area to be evaluated in future watershed surveys under subparagraph (14)(A)5.B.

(14)(A)2.B. Identification of both potential and actual sources of *Cryptosporidium* contamination and an assessment of the relative impact of these sources on the system's source water quality.

(14)(A)2.C. An analysis of the effectiveness and feasibility of control measures that could reduce *Cryptosporidium* loading from sources of contamination to the system's source water.

(14)(A)2.D. A statement of goals and specific actions the system will undertake to reduce source water *Cryptosporidium* levels. The plan must explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions identified in the plan.

(14)(A)3. Systems with existing watershed control programs (that is, programs in place on January 5, 2006) are eligible to seek this credit. Their watershed control plans must meet the criteria in paragraph (14)(A)2. of this rule and must specify ongoing and future actions that will reduce source water *Cryptosporidium* levels.

(14)(A)4. If the department does not respond to a system regarding approval of a watershed control plan submitted under this section and the system meets the other requirements of this section, the watershed control program will be considered approved and 0.5-log *Cryptosporidium* treatment credit will be awarded unless and until the department subsequently withdraws such approval.

(14)(A)5. Systems must complete the actions in subparagraphs (14)(A)5.A.-C. of this rule to maintain the 0.5-log credit.

(14)(A)5.A. Submit an annual watershed control program status report to the department. The annual watershed control program status report must describe the system's implementation of the approved plan and assess the adequacy of the plan to meet its goals. It must explain how the system is addressing any shortcomings in plan implementation, including those previously identified by the department or as the result of the watershed survey conducted under subparagraph (14)(A)5.B. of this rule. It must also describe any significant changes that have occurred in the watershed since the last watershed sanitary survey. If a system determines during implementation that making a significant change to its approved watershed control program is necessary, the system must notify the department prior to making any such changes. If any change is likely to reduce the level of source water protection, the system must also list in its notification the actions the system will take to mitigate this effect.

(14)(A)5.B. Undergo a watershed sanitary survey every three (3) years for community water systems and every five (5) years for noncommunity water systems and submit the survey report to the department. The survey must be conducted according to department guidelines and by persons the department approves.

(14)(A)5.B.(I) The watershed sanitary survey must meet the following criteria: encompass the region identified in the department-approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water *Cryptosporidium* levels; and identify any significant new sources of *Cryptosporidium*.

(14)(A)5.B.(II) If the department determines that significant changes may have occurred in the watershed since the previous watershed sanitary survey, systems must undergo another watershed sanitary survey by a date the department requires, which may be earlier than the regular date in subparagraph (14)(A)5.B. of this rule.

(14)(A)5.C. The system must make the watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request. These documents must be in a plain language style and include criteria by which to evaluate the success of the program in achieving plan goals. The department may approve systems to withhold from the public portions

of the annual status report, watershed control plan, and watershed sanitary survey based on water supply security considerations.

(14)(A)6. If the department determines that a system is not carrying out the approved watershed control plan, the department may withdraw the watershed control program treatment credit.

(14)(B) Alternative Source Requirements.

(14)(B)1. A system may conduct source water monitoring that reflects a different intake location (either in the same source or for an alternate source) or a different procedure for the timing or level of withdrawal from the source (alternative source monitoring). If the department approves, a system may determine its bin classification under section (10) of this rule based on the alternative source monitoring results.

(14)(B)2. If systems conduct alternative source monitoring under paragraph (14)(B)1 of this rule, systems must also monitor their current plant intake concurrently as described in section (2) of this rule.

(14)(B)3. Alternative source monitoring under paragraph $(\underline{14})(\underline{B})\underline{1}$. of this rule must meet the requirements for source monitoring to determine bin classification, as described in sections (2)-(6) of this rule. Systems must report the alternative source monitoring results to the department, along with supporting information documenting the operating conditions under which the samples were collected.

(14)(B)4. If a system determines its bin classification under section (10) of this rule using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, the system must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in section (12) of this rule.

(15) Pre-Filtration Treatment Toolbox Components.

(15)(A) Presedimentation. Systems receive 0.5-log *Cryptosporidium* treatment credit for a presedimentation basin during any month the process meets the criteria in this subsection.

(15)(A)1. The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a surface water or GWUDISW source.

(15)(A)2. The system must continuously add a coagulant to the presedimentation basin.

(15)(A)3. The presedimentation basin must achieve the performance criteria in subparagraph (15)(A)3.A. or B. of this rule.

(15)(A)3.A. Demonstrates at least 0.5-log mean reduction of influent turbidity. This reduction must be determined using daily turbidity measurements in the presedimentation process influent

and effluent and must be calculated as follows: log_{10} (monthly mean of daily influent turbidity) - log_{10} (monthly mean of daily effluent turbidity).

(15)(A)3.B. Complies with department-approved performance criteria that demonstrate at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process.

(15)(B) Two (2)-Stage Lime Softening. Systems receive an additional 0.5-log *Cryptosporidium* treatment credit for a two (2)-stage lime softening plant if chemical addition and hardness precipitation occur in two (2) separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or GWUDISW source.

(15)(C) Bank Filtration. Systems receive *Cryptosporidium* treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this subsection. Systems using bank filtration when they begin source water monitoring under subsection (2)(A) of this rule must collect samples as described in subsection (4)(D) of this rule and are not eligible for this credit.

(15)(C)1. Wells with a ground water flow path of at least twenty-five feet (25') receive 0.5-log treatment credit; wells with a ground water flow path of at least fifty feet (50') receive 1.0-log treatment credit. The ground water flow path must be determined as specified in paragraph (15)(C)4 of this rule.

(15)(C)2. Only wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A system must characterize the aquifer at the well site to determine aquifer properties. Systems must extract a core from the aquifer and demonstrate that, in at least ninety percent (90%) of the core length, grains less than 1.0 mm in diameter constitute at least ten percent (10%) of the core material.

(15)(C)3. Only horizontal and vertical wells are eligible for treatment credit.

(15)(C)4. For vertical wells, the ground water flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the one hundred (100)-year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the ground water flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

(15)(C)5. Systems must monitor each wellhead for turbidity at least once every four (4) hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed one (1) nephelometric turbidity unit (NTU), the system must report this result to the department and conduct an assessment within thirty (30) days to determine the cause of the high turbidity levels in the well. If the department determines that microbial removal has been compromised, the department may revoke treatment credit until the system implements corrective actions approved by the department to remediate the problem.

(15)(C)6. Springs and infiltration galleries are not eligible for treatment credit under this section but are eligible for credit under subsection (16)(C) of this rule.

(15)(C)7. Bank filtration demonstration of performance. The department may approve *Cryptosporidium* treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this subsection. This treatment credit may be greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in paragraphs (15)(C)1.-5. of this rule.

(15)(C)7.A. The study must follow a department-approved protocol and must involve the collection of data on the removal of *Cryptosporidium* or a surrogate for *Cryptosporidium* and related hydrogeologic and water quality parameters during the full range of operating conditions.

(15)(C)7.B. The study must include sampling both from the production well(s) and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well(s).

(16) Treatment Performance Toolbox Components.

(16)(A) Combined Filter Performance. Systems using conventional filtration treatment or direct filtration treatment receive an additional 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this subsection. Combined filter effluent (CFE) turbidity must be less than or equal to 0.15 NTU in at least ninety-five percent (95%) of the measurements. Turbidity must be measured as described in 10 CSR 60-4.050(3) and 10 CSR 60-4.080(3).

(16)(B) Individual Filter Performance. Systems using conventional filtration treatment or direct filtration treatment receive 0.5-log *Cryptosporidium* treatment credit, which can be in addition to the 0.5-log credit under subsection (16)(A) during any month the system meets the criteria in this subsection. Compliance with these criteria must be based on individual filter turbidity monitoring as described in 10 CSR 60-4.050(3)(E) and 10 CSR 60-7.010(7).

(16)(B)1. The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least ninety-five percent (95%) of the measurements recorded each month.

(16)(B)2. No individual filter may have a measured turbidity greater than 0.3 NTU in two (2) consecutive measurements taken fifteen (15) minutes apart.

(16)(B)3. Any system that has received treatment credit for individual filter performance and fails to meet the requirements of paragraph (16)(B)1. or 2. of this rule during any month does not receive a treatment technique violation under subsection (11)(C) of this rule if the department determines the following:

(16)(B)3.A. The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing treatment plant design, operation, and maintenance; and

(16)(B)3.B. The system has experienced no more than two (2) such failures in any calendar year.

(16)(C) Demonstration of Performance. The department may approve *Cryptosporidium* treatment credit for drinking water treatment processes based on a demonstration of performance study that meets the criteria in this subsection. This treatment credit may be greater than or less than the prescribed treatment credits in section (11) or section (15) through section (18) of this rule and may be awarded to treatment processes that do not meet the criteria for the prescribed credits.

(16)(C)1. Systems cannot receive the prescribed treatment credit for any toolbox option in sections (15) through (18) if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this paragraph.

(16)(C)2. The demonstration of performance study must follow a department-approved protocol and must demonstrate the level of *Cryptosporidium* reduction the treatment process will achieve under the full range of expected operating conditions for the system.

(16)(C)3. Approval by the department must be in writing and may include monitoring and treatment performance criteria that the system must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The department may designate such criteria, where necessary, to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.

(17) Additional Filtration Toolbox Components.

(17)(A) Bag and Cartridge Filters. Systems receive *Cryptosporidium* treatment credit of up to 2.0-log for individual bag or cartridge filters and up to 2.5-log for bag or cartridge filters operated in series by meeting the criteria in paragraphs (17)(A)1. through 10. of this section. To be eligible for this credit, systems must report the results of challenge testing that meets the requirements of paragraphs (17)(A)2. through 9. to the department. The filters must treat the entire plant flow taken from a surface water or ground water under the direct influence of surface water source.

(17)(A)1. The *Cryptosporidium* treatment credit awarded to bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing that is conducted according to the criteria in paragraphs (17)(A)2. through 9. A factor of safety equal to 1-log for individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing results to determine removal credit. Systems may use results from challenge testing conducted prior to January 5, 2006, if the prior testing was consistent with the criteria specified in paragraphs (17)(A)2. through 9.

(17)(A)2. Challenge testing must be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the system will use for removal of *Cryptosporidium*. Bag or cartridge filters must be challenge tested in the same configuration that the system will use, either as individual filters or as a series configuration of filters.

(17)(A)3. Challenge testing must be conducted using *Cryptosporidium* or a surrogate that is removed no more efficiently than Crypto-sporidium. The microorganism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate must be determined using a method capable of discretely quantifying the specific microorganism or surrogate used in the test; gross measurements such as turbidity may not be used.

(17)(A)4. The maximum feed water concentration that can be used during a challenge test must be based on the detection limit of the challenge particulate in the filtrate (i.e., filtrate detection limit) and must be calculated using the following equation:

Maximum Feed Concentration = $1 \times 10^4 x$ (Filtrate Detection Limit).

(17)(A)5. Challenge testing must be conducted at the maximum design flow rate for the filter as specified by the manufacturer.

(17)(A)6. Each filter evaluated must be tested for a duration sufficient to reach one hundred percent (100%) of the terminal pressure drop, which establishes the maximum pressure drop under which the filter may be used to comply with the requirements of this rule.

(17)(A)7. Removal efficiency of a filter must be determined from the results of the challenge test and expressed in terms of log removal values using the following equation:

 $LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$

Where:

LRV = log removal value demonstrated during challenge testing

 $C_{\rm f}$ = the feed concentration measured during the challenge test

 C_p = the filtrate concentration measured during the challenge test

In applying this equation, the same units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, then the term C_p must be set equal to the detection limit.

(17)(A)8. Each filter tested must be challenged with the challenge particulate during three (3) periods over the filtration cycle: within two (2) hours of start-up of a new filter; when the pressure drop is between forty-five percent and fifty-five percent (45%-55%) of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached one hundred percent (100%) of the terminal pressure drop. An LRV must be calculated for each of these challenge periods for each filter tested. The LRV for the filter (LRVfilter) must be assigned the value of the minimum LRV observed during the three (3) challenge periods for that filter.

(17)(A)9. If fewer than twenty (20) filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest LRV_{filter} among the filters tested. If twenty (20) or more filters are tested, the overall removal efficiency for the filter product line must be set equal to the 10th percentile of the set of LRV_{filter} values for the various filters tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

(17)(A)10. If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, challenge testing to demonstrate the removal efficiency of the modified filter must be conducted and submitted to the department.

(17)(B) Membrane Filtration Requirements.

(17)(B)1. Systems receive *Cryptosporidium* treatment credit for membrane filtration that meets the criteria of this paragraph. Membrane cartridge filters that meet the definition of membrane filtration in <u>10 CSR 60-2.015</u> are eligible for this credit. The level of treatment credit a system receives is equal to the lower of the values determined under subparagraphs (<u>17)(B)1.A.</u> and B.

(17)(B)1.A. The removal efficiency demonstrated during challenge testing conducted under the conditions in paragraph (17)(B)2.

(17)(B)1.B. The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process under the conditions in paragraph (17)(B)3.

(17)(B)2. Challenge testing. The membrane used by the system must undergo challenge testing to evaluate removal efficiency, and the system must report the results of challenge testing to the department. Challenge testing must be conducted according to the criteria in subparagraphs (17)(B)2.A. through H. Systems may use data from challenge testing conducted prior to January 5, 2006, if the prior testing was consistent with the criteria in subparagraphs (17)(B)2.A. through G.

(17)(B)2.A. Challenge testing must be conducted on either a full-scale membrane module, identical in material and construction to the membrane modules used in the system's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

(17)(B)2.B. Challenge testing must be conducted using *Cryptosporidium* oocysts or a surrogate that is removed no more efficiently than *Cryptosporidium* oocysts. The organism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity may not be used.

(17)(B)2.C. The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and must be determined according to the following equation:

Maximum Feed Concentration = $3.16 \times 10^6 \times (\text{Filtrate Detection Limit})$

(17)(B)2.D. Challenge testing must be conducted under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module. Flux is defined as the throughput of a pressure-driven membrane process expressed as flow per unit of membrane area. Recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process (i.e., backwashing).

(17)(B)2.E. Removal efficiency of a membrane module must be calculated from the challenge test results and expressed as a log removal value according to the following equation:

 $LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$

Where:

LRV = log removal value demonstrated during the challenge test

 C_{f} = the feed concentration measured during the challenge test

 C_p = the filtrate concentration measured during the challenge test

Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p is set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.

(17)(B)2.F. The removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value (LRV_{C-Test}). If fewer than twenty (20) modules are tested, then LRV_{C-Test} is equal to the lowest of the representative LRVs among the modules tested. If twenty (20) or more modules are tested, then LRV_{C-Test} is equal to the 10th percentile of the representative LRVs among the modules tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

(17)(B)2.G. The challenge test must establish a quality control release value (QCRV) for a nondestructive performance test that demonstrates the *Cryptosporidium* removal capability of the membrane filtration module. This performance test must be applied to each production membrane module used by the system that was not directly challenge tested in order to verify *Cryptosporidium* removal capability. Production modules that do not meet the established QCRV are not eligible for the treatment credit demonstrated during the challenge test. (17)(B)2.H. If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the non-destructive performance test and associated QCRV, additional challenge testing to demonstrate the removal efficiency of, and determine a new QCRV for, the modified membrane must be conducted and submitted to the department.

(17)(B)3. Direct integrity testing. Systems must conduct direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded to the membrane filtration process and meets the requirements described in subparagraphs (17)(B)3.A.-G. of this rule. A direct integrity test is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches (that is, one (1) or more leaks that could result in contamination of the filtrate).

(17)(B)3.A. The direct integrity test must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.

(17)(B)3.B. The direct integrity method must have a resolution of three (3) micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test.

(17)(B)3.C. The direct integrity test must have a sensitivity sufficient to verify the log treatment credit awarded to the membrane filtration process by the department, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test. Sensitivity must be determined using the approach in either part (17)(B)3.C.(I) or (II) of this section as applicable to the type of direct integrity test the system uses.

(17)(B)3.C.(I) For direct integrity tests that use an applied pressure or vacuum, the direct integrity test sensitivity must be calculated according to the following equation:

 $LRV_{DIT} = LOG_{10} (Q_p/(VCF \times Q_{breach}))$

Where:

 LRV_{DIT} = the sensitivity of the direct integrity test

 Q_p = total design filtrate flow from the membrane unit

 $Q_{breach} = flow$ of water from an integrity breach associated with the smallest integrity test response that can be reliably measured

VCF = volumetric concentration factor

The volumetric concentration factor is the ratio of the suspended solids concentration on the high pressure side of the membrane relative to that in the feed water.

(17)(B)3.C.(II) For direct integrity tests that use a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation:

 $LRV_{DIT} = LOG_{10}(C_f) - LOG_{10}(C_p)$

Where:

 LRV_{DIT} = the sensitivity of the direct integrity test

 C_{f} = the typical feed concentration of the marker used in the test

 C_p = the filtrate concentration of the marker from an integral membrane unit

(17)(B)3.D. Systems must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the department.

(17)(B)3.E. If the result of a direct integrity test exceeds the control limit established under subparagraph (17)(B)3.D, the system must remove the membrane unit from service. Systems must conduct a direct integrity test to verify any repairs and may return the membrane unit to service only if the direct integrity test is within the established control limit.

(17)(B)3.F. Systems must conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The department may approve less frequent testing, based on demonstrated process reliability, the use of multiple barriers effective for *Cryptosporidium*, or reliable process safeguards.

(17)(B)4. Indirect integrity monitoring. Systems must conduct continuous indirect integrity monitoring on each membrane unit according to the criteria in subparagraphs (17)(B)4.A. through E. Indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A system that implements continuous direct integrity testing of membrane units in accordance with the criteria in subparagraphs (17)(B)3.A. through E. of this section is not subject to the requirements for continuous indirect integrity monitoring. Systems must submit a monthly report to the department summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.

(17)(B)4.A. Unless the department approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.

(17)(B)4.B. Continuous monitoring must be conducted at a frequency of no less than once every fifteen (15) minutes.

(17)(B)4.C. Continuous monitoring must be separately conducted on each membrane unit.

(17)(B)4.D. If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than fifteen (15) minutes (i.e., two (2) consecutive fifteen (15)-minute readings above 0.15 NTU), direct integrity testing must immediately be performed on the associated membrane unit as specified in subparagraphs (17)(B)3.A. through E.

(17)(B)4.E. If indirect integrity monitoring includes a department-approved alternative parameter and if the alternative parameter exceeds a department-approved control limit for a period greater than fifteen (15) minutes, direct integrity testing must immediately be performed on the associated membrane units as specified in subparagraphs (17)(B)3.A. through E.

(17)(C) Second Stage Filtration. Systems receive 0.5-log *Cryptosporidium* treatment credit for a separate second stage of filtration that consists of sand, dual media, granular activated carbon (GAC), or other fine grain media following granular media filtration if the department approves. To be eligible for this credit, the first stage of filtration must be preceded by a coagulation step, and both filtration stages must treat the entire plant flow taken from a surface water or GWUDISW source. A cap, such as GAC, on a single stage of filtration is not eligible for this credit. The department must approve the treatment credit based on an assessment of the design characteristics of the filtration process.

(17)(D) Slow Sand Filtration (as Secondary Filter). Systems are eligible to receive 2.5-log *Cryptosporidium* treatment credit for a slow sand filtration process that follows a separate stage of filtration if both filtration stages treat entire plant flow taken from a surface water or GWUDISW source and no disinfectant residual is present in the influent water to the slow sand filtration process. The department must approve the treatment credit based on an assessment of the design characteristics of the filtration process. This subsection does not apply to treatment credit awarded to slow sand filtration used as a primary filtration process.

(18) Inactivation Toolbox Components.

(18)(A) Calculation of CT Values.

(18)(A)1. CT is the product of the disinfectant contact time (T, in minutes) and disinfectant concentration (C, in milligrams per liter). Systems with treatment credit for chlorine dioxide or ozone under subsection (18)(B) or (C) must calculate CT at least once each day, with both C and T measured during peak hourly flow as specified in 10 CSR 60-5.010, 10 CSR 60-5.020, and the *Guidance Manual for Surface Water System Treatment Requirements*, January 1992.

(18)(A)2. Systems with several disinfection segments in sequence may calculate CT for each segment, where a disinfection segment is defined as a treatment unit process with a measurable disinfectant residual level and a liquid volume. Under this approach, systems must add the *Cryptosporidium* CT values in each segment to determine the total CT for the treatment plant.

(18)(B) CT Values for Chlorine Dioxide and Ozone.

(18)(B)1. Systems receive the *Cryptosporidium* treatment credit listed in this table by meeting the corresponding chlorine dioxide CT value for the applicable water temperature, as described

in subsection (18)(A). Systems may use this equation to determine log credit between the indicated values:

Log credit = $(0.001506 \text{ x} (1.09116)^{\text{Temp}}) \text{ x CT}$

+	+										
+	Water temperature, °C										
Log credit -	+	+	+	+	+	+	+	+	++		
 25 30	≤0.5	1	2	3	5	7	10	15	20		
++ 0.25 19 12 +	159	153	140	128	+ 107 +	90	69	45	29		
++ 0.5 38 24 +	319 +	305	279	256	214 +	180	138	89	58		
++ 1.0 75 49	637	610	558	511 +	429 +	360	277	179	116		
++ 1.5 113 73	956	915	838	767	643	539	415	268	174		
++ 2.0 150 98	1275	1220	1117	1023	858	719	553	357	232		
++ 2.5 188 122	1594	1525	1396	1278	1072	899	691	447	289		
++ 3.0 226 147 +	1912	1830	1675	1534	1286	1079	830	536	347		
++	,						. – -	. – -	. – т	-	

CT Values (MG-MIN/L) for *Cryptosporidium* Inactivation By Chlorine Dioxide

(18)(B)2. Systems receive the *Cryptosporidium* treatment credit listed in this table by meeting the corresponding ozone CT values for the applicable water temperature, as described in subsection (18)(A) of this rule.

	Log credit = (0.0397 x (1.09757) ^{temp}) x CT																	
+	Water temperature, °C																	
Log credit++ 25 30	+ ≤0.5	-+- 	1	-+- 	2	-+- 	3	-+- 	5	-+- 	7	+	10	-+ 	15	· + ·	20	+
++ 0.25 0.6 0.39	+	-+- -+-	5.8	-+-	5.2	-+-	4.8	-+-	4.0	-+-	3.3		2.5	-+-	1.6		1.0	
++ 0.5 1.2 0.78 +	12 +	 -+-	12	 -+-	10	' -+-	9.5	 -+-	7.9	 -+-	6.5	 .+.	4.9	 -+	3.1	 .+.	2.0	 +
++ 1.0 2.5 1.6 +	24	 -+-	23	 -+-	21	 -+-	19	 -+-	16	 -+-	13		9.9	 -+	6.2		3.9	
++ 1.5 3.7 2.4 +	36 +	 -+-	35	 -+-	31	 -+-	29	 -+-	24	 -+-	20		15	 -+	9.3		5.9	
++ 2.0 4.9 3.1 +	48	 -+-	46	 -+-	42	 -+-	38	 -+-	32	 -+-	26		20	 -+	12		7.8	
++ 2.5 6.2 3.9 +	60 +	 -+-	58	 -+-	52	 -+-	48	 -+-	40	 -+-	33		25		16		9.8	
++ 3.0 7.4 4.7 +	72 +	 -+-	69	 -+-	63	 -+-	57	 -+-	47	 -+-	39		30	 -+	19		12	
++																		

| Systems may use this equation to determine log credit between the indicated values:|

(18)(C) Site-Specific Study. The department may approve alternative chlorine dioxide or ozone CT values to those listed in subsection (18)(B) on a site-specific basis. The department must base this approval on a site-specific study a system conducts that follows a department-approved protocol.

(18)(D) Ultraviolet Light. Systems receive *Cryptosporidium*, *Giardia lamblia*, and virustreatment credits for ultraviolet (UV) light reactors by achieving the corresponding UV dose values shown in paragraph (18)(D)1. Systems must validate and monitor UV reactors as described in paragraphs (18)(D)2 and 3. to demonstrate that they are achieving a particular UV dose value for treatment credit. (18)(D)1. UV dose table. The treatment credits listed in this table are for UV light at a wavelength of two hundred fifty-four nanometers (254 nm) as produced by a low pressure mercury vapor lamp. To receive treatment credit for other lamp types, systems must demonstrate an equivalent germicidal dose through reactor validation testing, as described in paragraph (18)(D)2. of this rule. The UV dose values in this table are applicable only to post-filter applications of UV in filtered systems.

_____ UV Dose Table for Cryptosporidium, Giardia lamblia, and Virus Inactivation Credit | ____+ Log credit | *Cryptosporidium* UV | *Giardia lamblia* UV | Virus dose (mJ/cm²) dose (mJ/cm²) UV dose (mJ/cm²) +-----0.5 1.6 1.5 39 ----+ 2.1 1.0 2.5 58 ----+ 1.5 3.9 3.0 79 ____+ 5.8 5.2 2.0 100 ----+ 2.5 8.5 | 7.7 121 ----+ 3.0 11 | 12 143 ----+ 3.5 | 15 15 163 4.0 22 22 186

(18)(D)2. Reactor validation testing. Systems must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the UV

dose required in paragraph (18)(D)1. (i.e., validated operating conditions). These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status.

(18)(D)2.A. When determining validated operating conditions, systems must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of online sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical system components; and inlet and outlet piping or channel configurations of the UV reactor.

(18)(D)2.B. Validation testing must include the following: Full-scale testing of a reactor that conforms uniformly to the UV reactors used by the system and inactivation of a test microorganism whose dose response characteristics have been quantified with a low pressure mercury vapor lamp.

(18)(D)2.C. The department may approve an alternative approach to validation testing.

(18)(D)3. Reactor monitoring requirements.

(18)(D)3.A. Systems must monitor their UV reactors to determine if the reactors are operating within validated conditions, as determined under paragraph (18)(D)2. This monitoring must include UV intensity as measured by a UV sensor, flow rate, lamp status, and other parameters the department designates based on UV reactor operation. Systems must verify the calibration of UV sensors and must recalibrate sensors in accordance with a protocol the department approves.

(18)(D)3.B. To receive treatment credit for UV light, systems must treat at least ninety-five percent (95%) of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose, as described in paragraphs (18)(D)1. and 2. Systems must demonstrate compliance with this condition by the monitoring required under subparagraph (18)(D)3.A. of this rule.

(19) Reporting Requirements.

(19)(A) Systems must report sampling schedules under section (3) of this rule and source water monitoring results under section (6) of this rule unless they notify the department that they will not conduct source water monitoring due to meeting the criteria of subsection (2)(D) of this rule.

(19)(B) Filtered systems must report their *Cryptosporidium* bin classification as described in section (10) of this rule.

(19)(C) Systems must report disinfection profiles and benchmarks to the department as described in sections (8) through (9) of this rule prior to making a significant change in disinfection practice.

(19)(D) Systems must report to the department in accordance with the following table for any microbial toolbox options used to comply with treatment requirements under section (11) of this

rule. Alternatively, the department may approve a system to certify operation within required parameters for treatment credit rather than reporting monthly operational data for toolbox options.

[Table not included in this text]

10 CSR 60-4.055 Disinfection Requirements

PURPOSE: This rule establishes minimum disinfectant levels and treatment requirements to assure the inactivation and removal of pathogenic organisms.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) The requirements of this rule apply to primary community and noncommunity public water systems that the department has required to disinfect and to secondary systems with a source of water from a primary water system that the department has required to disinfect, even if the water is obtained through another secondary system.

(1)(A) Water systems using water obtained in whole or in part from a source determined by the department to be surface or ground water under the direct influence of surface water must install or construct facilities to provide conventional filtration treatment as a required treatment technique within eighteen (18) months of the determination.

(1)(B) Any water system that the department determines to be a groundwater system under the direct influence of surface water may appeal the decision by notifying the department in writing. The appeal must be accompanied by a report prepared by an engineer that confirms that the water system's groundwater source is not directly influenced by surface water. The report must be supported by analytical data prepared by a laboratory that is acceptable to the department. Source sampling must be accomplished during the period the source is most susceptible to surface water influence. The department's approval of the report will result in the water system's source being redefined as groundwater not under the direct influence of surface water.

(1)(C) If at any time in the department's opinion, the quality of a water source appears to have changed to be under the direct influence of surface water, the water system must submit, at the department's written request, an engineer-prepared report that describes the current condition of the water source. If a report is not submitted, the source will be reclassified as groundwater supply under the direct influence of surface water.

(1)(D) The department reserves the authority to make the final determination of whether or not a source is defined as groundwater under the direct influence of surface water.

(1)(E) Primary systems which use water obtained from groundwater not under the direct influence of surface water and which the department requires to disinfect and secondary public water systems do not have to meet the requirements of section (2) of this rule but may be required to provide disinfection detention as deemed necessary by the department. These systems also do not have to submit reports to the department as required by 10 CSR 60-7.010(5) but must maintain the information on file at the system treatment plant or office.

(2) Contact Time and Removal Credit.

(2)(A) Any water system providing required treatment, and existing water systems practicing conventional filtration treatment on February 6, 1992, will be credited with 99.68 percent (2.5 log) *Giardia lamblia* cyst removal and 99.0 percent (2.0 log) virus removal, excluding the disinfection process, provided that they meet the turbidity maximum contaminant levels in <u>10</u> <u>CSR 60-4.050</u>. A system may request additional credit for treatment process removal or inactivation of *Giardia lamblia* cysts and viruses by submitting a report prepared by an engineer to the department including studies of *Giardia* cyst and virus removal or inactivation. The department reserves the authority to make the final determination of removal credit.

(2)(B) The residual disinfectant concentration (C) disinfectant contact time (T) values in the *Missouri Guidance Manual for Surface Water System Treatment Requirements*, 1992, must be used for determining the percentage of *Giardia lamblia* cyst and virus removal or inactivation by disinfection.

(2)(C) The percentage of removal and inactivation of *Giardia lamblia* cysts and viruses will be determined as the sum of the percent removals and inactivations of the individual treatment and disinfection processes. The percent removal and inactivation of *Giardia lamblia* cysts must be at least 99.9 percent (3.0 log) and of viruses must be 99.99 percent (4.0 log).

(2)(D) Disinfectant contact time must be determined for each system by evaluations performed as specified in the *Missouri Guidance Manual For Surface Water System Treatment Requirements*, 1992, which is incorporated by reference. Results of the evaluations, including the determined disinfectant contact times, must be submitted to the department for review. The evaluation must be submitted within one (1) year of the date that the system is covered by the requirements of this rule, except that new water treatment facilities will not be issued a Final Approval of Construction under <u>10 CSR 60-3.010</u> until disinfection contact times are determined and submitted to the department.

(3) For any water system adding a disinfectant, only free available chlorine or chloramines will be accepted as the disinfectant entering the distribution system. The residual disinfectant concentration in the water entering the distribution system cannot be less than 0.5 milligrams per liter (mg/l) free available chlorine or 1.0 mg/l chloramines for more than four (4) hours.

(3)(A) Systems using chloramines as the disinfectant residual entering the distribution system must add and mix the chlorine prior to the addition of ammonia.

(3)(B) At the department's discretion, any system may be required to provide breakpoint chlorination or to provide operational test data and other information that the department may require to demonstrate that the system daily meets all of the requirements of section (2) of this rule and all of the other requirements of this section.

(3)(C) At least one (1) application point for chlorine or chloramines must be prior to filtration with a residual maintained through the filters.

(3)(D) If at any time the disinfectant residual entering the distribution system falls below the levels established in this section, the system must notify the department as soon as possible but no later than by the end of the next business day. The system must notify the department by the end of the next business day whether or not the disinfectant residual was restored to the levels established in this section within four (4) hours. The department may require public notice for continuing or persistent violations of this requirements.

(3)(E) A residual disinfectant concentration in the water entering the distribution system of less than 0.2 mg/l for at least four (4) hours is a treatment technique violation which requires public notice pursuant to 10 CSR 60-8.010.

(3)(F) The frequency of sampling shall be as set forth in 10 CSR 60-4.080(3).

(4) The residual disinfectant concentration in the distribution system measured as total chlorine or combined chlorine cannot be less than 0.2 mg/l in more than five percent (5%) of the samples each month for any two (2) consecutive months that the system supplies water to the public.

(4)(A) Heterotrophic plate count may be used in lieu of or as a supplement to residual disinfectant concentration analysis.

(4)(B) Water in the distribution system with a heterotrophic bacteria concentration less than or equal to five hundred (500) colonies per milliliter is deemed to have 0.2 mg/l residual disinfectant concentration for the purpose of determining compliance with this rule.

(4)(C) Water in the distribution system with a heterotrophic bacteria concentration of greater than five hundred (>500) colonies per milliliter is deemed to have less than 0.2 mg/l residual disinfectant concentration for the purpose of compliance with this rule.

(4)(D) Failure to maintain the minimum residual disinfectant concentration required in this rule is a violation of a treatment technique which requires public notification as specified in 10 CSR <u>60-8.010</u>.

(4)(E) The residual disinfectant concentration must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled as specified in 10 CSR

<u>60-4.020</u>. Failure to comply with this subsection is a monitoring violation which requires public notification as specified in <u>10 CSR 60-8.010</u>.

(5) Maximum Residual Disinfectant Levels.

(5)(A) Maximum residual disinfectant levels (MRDL) are--

Disinfectant Residual	MRDI	L (mg	g/l)
Chlorine	4.0	(as	Cl ₂)
Chloramines	4.0	(as	Cl ₂)
Chlorine dioxide	0.8	(as	Cl0 ₂)

(5)(B) Control of Disinfectant Residuals. For chlorine and chloramines, a public water system is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL. For chlorine dioxide, a public water system (PWS) is in compliance with the MRDL when daily samples are taken at the entrance to the distribution system and no two (2) consecutive daily samples exceed the MRDL. MRDLs are enforceable in the same manner as maximum contaminant levels. Notwithstanding the MRDLs, systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines (but not chlorine dioxide) to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

(**5**)(C) Compliance Dates.

(5)(C)1. Community water systems and nontransient noncommunity water systems.

(5)(C)1.A. Systems serving ten thousand (10,000) or more persons and using surface water or groundwater under the direct influence of surface water must comply with the MRDLs beginning January 1, 2002.

(5)(C)1.B. Systems serving fewer than ten thousand (10,000) persons and using surface water or groundwater under the direct influence of surface water and systems using only groundwater not under the direct influence of surface water must comply with the MRDLs beginning January 1, 2004.

(5)(C)2. Transient noncommunity water systems.

(5)(C)2.A. Systems serving ten thousand (10,000) or more persons and using surface water or groundwater under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2002.

(5)(C)2.B. Systems serving less than ten thousand (10,000) persons, using surface water or groundwater under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant, and systems using only groundwater not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant, must comply with the chlorine dioxide MRDL beginning January 1, 2004.

(6) Enhanced Disinfection Requirements. En-hanced disinfection requirements and compliance dates vary depending on system size.

(6)(A) Compliance Dates. In addition to the requirements in sections (1)-(4) of this rule, surface water and groundwater under the direct influence of surface water systems serving at least ten thousand (10,000) people also must comply with the requirements in this section beginning January 1, 2002 unless otherwise specified. Those systems serving less than ten thousand (10,000) people must comply with the requirements in this section beginning January 14, 2005 unless otherwise specified.

(6)(B) General Requirements.

(6)(B)1. This section (6) establishes or extends treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, *Cryptosporidium*, and turbidity. Each surface water and groundwater under the direct influence of surface water system, including those serving less than ten thousand (10,000) people beginning January 14, 2005, must provide treatment of its source water that complies with these treatment technique requirements and are in addition to those identified in sections (1)-(4) of this rule. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

(6)(B)**1.**A. At least ninety-nine percent (99%) (2-log) removal of *Cryptosporidium* between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer; and

(6)(B)1.B. Compliance with the profiling and benchmark requirements under the provisions of subsection $(\underline{6})(\underline{C})$ of this rule.

(6)(B)2. A public water system subject to the requirements of this section (6) is in compliance with the requirements of paragraph (6)(B)1. of this rule if it meets the applicable filtration requirements in 10 CSR 60-4.050 and the disinfection requirements in sections (2)-(4) and subsection (6)(C) of this rule.

(6)(C) Disinfection Profiling and Benchmarking.

(6)(C)1. Disinfection profile. A disinfection profile is a summary of *Giardia lamblia* inactivation through the treatment plant measured through the course of a year. A public water system subject to the requirements of this section (6) must determine its total trihalomethanes (TTHM) annual average and its HAA5 annual average. The annual average is the arithmetic average of the
quarterly averages of four (4) consecutive quarters of monitoring. Surface water systems serving fewer than ten thousand (10,000) people must determine the arithmetic average based on samples collected after January 1, 1998. If the annual average exceeds the levels in subparagraph ((6)(C)1.D), then the requirements in paragraph ((6)(C)2), apply.

(6)(C)1.A. The TTHM annual average must be the annual average during the same period as is used for the HAA5 annual average.

(6)(C)1.A.(I) Those systems that use "grandfathered" HAA5 occurrence data that meet the provisions of part (5)(C)1.B.(I) of this rule must use TTHM data collected at the same time under the provisions of <u>10 CSR 60-4.090</u>.

(6)(C)1.A.(II) Those systems that use HAA5 occurrence data that meet the provisions of subpart (6)(C)1.B.(II)(a) of this rule must use TTHM data collected at the same time under the provisions of 10 CSR 60-4.090.

(6)(C)1.B. The HAA5 annual average must be the annual average during the same period as is used for the TTHM annual average.

(6)(C)1.B.(I) Those systems that have collected four (4) quarters of HAA5 occurrence data that meets the routine monitoring sample number and location requirements for TTHM in <u>10 CSR</u> <u>60-4.090</u> and handling and analytical method requirements of <u>40 CFR 141.142</u> may use those data to determine whether the requirements of this section apply.

(6)(C)1.B.(II) Those systems that did not collect four (4) quarters of HAA5 occurrence data that meets the provisions of part (6)(C)1.B.(I) of this rule by March 31, 2000 must either:

(6)(C)1.B.(II)(a) Conduct monitoring for HAA5 that meets the routine monitoring sample number and location requirements for TTHM in 10 CSR 60-4.090(2) and handling and analytical method requirements of 40 CFR 141.142(b)(1) to determine the HAA5 annual average and whether the requirements of paragraph (6)(C)2. of this rule apply; or

(6)(C)1.B.(II)(b) Comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with paragraph $(\underline{6})(\underline{C})2$. of this rule.

(6)(C)1.C. The system must submit data to the department on the schedule required by the department.

(6)(C)1.D. Any system having either a TTHM annual average greater than or equal to 0.064 mg/l or an HAA5 annual average greater than or equal to 0.048 mg/l during the period identified in subparagraphs (6)(C)1.A. and B. of this rule must comply with paragraph (6)(C)2. of this rule.

(6)(C)2. Disinfection profiling requirements and compliance dates vary depending on system size. Surface water systems serving a population of less than ten thousand (10,000) must monitor profiling data according to subparagraph (6)(C)2.D. beginning July 1, 2003. Surface water and groundwater under the direct influence of surface water (GWUDISW) systems serving a

population of less than five hundred (500) must monitor profiling data according to subparagraph (6)(C)2.D. beginning January 1, 2004.

(6)(C)2.A. Any system that meets the criteria in subparagraph (6)(C)1.D. of this rule must develop a disinfection profile of its disinfection practice for a period of up to three (3) years.

(6)(C)2.B. The system must monitor daily for a period of twelve (12) consecutive calendar months to determine the total logs of inactivation for each day of operation, based on the $CT_{99.9}$ values in Tables 1 through 8 of the Missouri "Guidance Manual for Surface Water System Treatment Requirements," as appropriate, through the entire treatment plant. This system must begin this monitoring when requested by the department. As a minimum, the system with a single point of disinfectant application prior to entrance to the distribution system must conduct the monitoring set forth in this subparagraph (6)(C)2.B. A system with more than one (1) point of disinfectant application must conduct this monitoring for each disinfection segment. The system must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in 10 CSR 60-5.010, as follows:

(6)(C)2.B.(I) The temperature of the disinfected water must be measured once per day at each residual disinfectant concentration sampling point during peak hourly flow;

(6)(C)2.B.(II) If the system uses chlorine, the pH of the disinfected water must be measured once per day at each chlorine residual disinfectant concentration sampling point during peak hourly flow;

(6)(C)2.B.(III) The disinfectant contact time(s) must be determined for each day during peak hourly flow; and

(6)(C)2.B.(IV) The residual disinfectant concentration(s) of the water before or at the first customer and prior to each additional point of disinfection must be measured each day during peak hourly flow.

(6)(C)2.C. In lieu of the monitoring conducted under the provisions of subparagraph (6)(C)2.B. of this rule to develop the disinfection profile the system may elect to meet the requirements of part (6)(C)2.C.(I) of this rule. In addition to the monitoring conducted under the provisions of subparagraph (6)(C)2.B. of this rule to develop the disinfection profile, the system may elect to meet the requirements of part (6)(C)2.C.(II) of this rule to develop the disinfection profile, the system may elect to meet the requirements of part (6)(C)2.C.(II) of this rule.

(6)(C)2.C.(I) A PWS that has three (3) years of existing operational data may submit those data, a profile generated using those data, and a request that the department approve use of those data in lieu of monitoring under the provisions of paragraph ($\underline{6}$)(C)2. of this rule. The department must determine whether these operational data are substantially equivalent to data collected under the provisions of subparagraph ($\underline{6}$)(C)2.B. of this rule. These data must also be representative of *Giardia lamblia* inactivation through the entire treatment plant and not just of certain treatment segments. Until the department approves this request, the system is required to conduct monitoring under the provisions of subparagraph ($\underline{6}$)(C)2.B. of this rule.

(6)(C)2.C.(II) In addition to the disinfection profile generated under subparagraph $(\underline{6})(\underline{C})2.\underline{B}$. of this rule, a PWS that has existing operational data may use those data to develop a disinfection profile for additional years. Such systems may use these additional yearly disinfection profiles to develop a benchmark under the provisions of paragraph $(\underline{6})(\underline{C})3$. of this rule. The department will determine whether these operational data are substantially equivalent to data collected under the provisions of subparagraph $(\underline{6})(\underline{C})2.\underline{B}$. of this rule. These data must also be representative of inactivation through the entire treatment plant and not just of certain treatment segments.

(6)(C)2.D. The system must monitor once per week on the same calendar day, for a period of twelve (12) consecutive calendar months, to determine the total logs of inactivation for each week of operation, based on the $CT_{99.9}$ values in Tables 1 through 8 of the Missouri "Guidance Manual for Surface Water System Treatment Requirements," as appropriate, through the entire treatment plant. As a minimum, the system with a single point of disinfectant application prior to entrance to the distribution system must conduct the monitoring set forth in this subparagraph. A system with more than one (1) point of disinfectant application must conduct this monitoring for each disinfection segment. The system must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in <u>10 CSR 60-5.010</u>, as follows:

(6)(C)2.D.(I) The temperature of the disinfected water must be measured at each residual disinfectant concentration sampling point during peak hourly flow;

(6)(C)2.D.(II) If the system uses chlorine, the pH of the disinfected water must be measured at each chlorine residual disinfectant concentration sampling point during peak hourly flow;

(6)(C)2.D.(III) The disinfectant contact time(s) must be determined during peak hourly flow; and

(6)(C)2.D.(IV) The residual disinfectant concentration(s) of the water before or at the first customer and prior to each additional point of disinfection must be measured during peak hourly flow.

(6)(C)2.E. The system must calculate the total inactivation ratio as follows:

(6)(C)2.E.(I) The system may determine the total inactivation ratio for the disinfection segment based on either of the following methods:

(6)(C)2.E.(I)(a) Determine one (1) inactivation ratio (CTcalc/CT_{99.9}) before or at the first customer during peak hourly flow; or

(6)(C)2.E.(I)(b) Determine successive (CTcalc/CT_{99.9}) values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the system must cal-culate the total inactivation ratio by determining (CTcalc/CT_{99.9}) for each sequence and then adding the (CTcalc/CT_{99.9}) values together to determine (Σ (CTcalc/CT_{99.9}); and

(6)(C)2.E.(II) The system must determine the total logs of inactivation by multiplying the value calculated in part (6)(C)2.D.(I) of this rule by three (3.0).

(6)(C)2.F. A system that uses either chloramines or ozone for primary disinfection must also calculate the logs of inactivation for viruses using a method identified in EPA's "Alternative Disinfectants and Oxidants Guidance Manual."

(6)(C)2.G. The system must retain disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the department for review as part of sanitary surveys conducted by the department.

(6)(C)3. Disinfection benchmarking.

(6)(C)3.A. Any system required to develop a disinfection profile under the provisions of paragraphs ($\underline{6}$)(C)1. and 2. of this rule and that decides to make a significant change to its disinfection practice must consult with the department in writing prior to making such change. Significant changes to disinfection practice are:

(6)(C)3.A.(I) Changes to the point of disinfection;

(6)(C)3.A.(II) Changes to the disinfectant(s) used in the treatment plant;

(6)(C)3.A.(III) Changes to the disinfection process; and

(6)(C)3.A.(IV) Any other modification identified by the department.

(6)(C)3.B. Any system that is modifying its disinfection practice must calculate its disinfection benchmark using one of the following procedures:

(6)(C)3.B.(I) For each year of profiling data collected and calculated under paragraph (6)(C)2. of this rule, the system must determine the lowest average monthly *Giardia lamblia* inactivation in each year of profiling data. The system must determine the average *Giardia lamblia* inactivation for each calendar month for each year of profiling data by dividing the sum of *Giardia lamblia* inactivation in activation by the number of values calculated for that month; or

(6)(C)3.B.(II) The disinfection benchmark is the lowest monthly average value (for systems with one (1) year of profiling data) or average of lowest monthly average values (for systems with more than one (1) year of profiling data) of the monthly logs of *Giardia lamblia* inactivation in each year of profiling data.

(6)(C)3.C. A system that uses either chloramines or ozone for primary disinfection must also calculate the disinfection benchmark for viruses using a method approved by the department.

(6)(C)3.D. The system must submit the following information to the department as part of its consultation process:

(6)(C)3.D.(I) A description of the proposed change;

(6)(C)3.D.(II) The disinfection profile for *Giardia lamblia* (and, if necessary, viruses) under paragraph (6)(C)2. of this rule and benchmark as required by subparagraph (6)(C)3.B. of this rule; and

(6)(C)3.D.(III) An analysis of how the proposed change will affect the current levels of disinfection.

(6)(D) Filtration Sampling Requirements. A public water system subject to the requirements of this section (6) that provides conventional filtration treatment must conduct continuous monitoring of turbidity for each individual filter as indicated in 10 CSR 60-4.050(3)(E).

10 CSR 60-4.060 Maximum Radionuclide Contaminant Levels And Monitoring Requirements

PURPOSE: This rule establishes maximum contaminant levels and monitoring requirements for radionuclides.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) Maximum Contaminant Levels (MCL) and Compliance Dates.

(1)(A) MCL for Combined Radium-226 and Radium-228. The maximum contaminant level for combined radium-226 and radium-228 is five picocuries per liter (5 pCi/L). The combined radium-226 and radium-228 value is determined by the addition of the results of the analysis for radium-226 and the analysis for radium-228.

(1)(B) MCL for Gross Alpha Particle Activity (Excluding Radon and Uranium). The maximum contaminant level for gross alpha particle activity (including radium-226 but excluding radon and uranium) is fifteen picocuries per liter (15 pCi/L).

(1)(C) MCL for Beta Particle and Photon Radioactivity.

(1)(C)1. The average annual concentration of beta particle and photon radioactivity from manmade radionuclides in drinking water must not produce an annual dose equivalent to the total body or any internal organ greater than four (4) millirem/year (mrem/year).

(1)(C)2. Except for the radionuclides listed in Table A, the concentration of man-made radionuclides causing four (4) mrem total body or organ dose equivalents must be calculated on the basis of two (2) liter per day drinking water intake using the one hundred sixty-eight (168)

hour data list in "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," NBS (National Bureau of Standards) Handbook 69 as amended August 1963, U.S. Department of Commerce, which is incorporated by reference. If two (2) or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed four (4) mrem/year.

Table A.--Average Annual Concentrations Assumed to Produce a Total Body or Organ Dose of Mrem/Year

	Liter
TritiumTotal body20,000Strontium-90Bone Marrow	D B

(1)(D) MCL for Uranium. The maximum contaminant level for uranium is thirty micrograms per liter (30 μ g/L).

(1)(E) Compliance Dates. Community water systems (CWSs) must comply with the MCLs listed in subsections (1)(A)-(D) of this rule beginning December 8, 2003. Compliance shall be determined in accordance with the requirements of 10 CSR 60-5.010 and section (2) of this rule. Compliance with Consumer Confidence Report and public notice requirements for radionuclides is required on December 8, 2003.

(2) Monitoring Frequency and Compliance Requirements for Radionuclides in Com-munity Water Systems.

(2)(A) Monitoring and Compliance Require-ments for Gross Alpha Particle Activity, Radium-226, Radium-228, and Uranium.

(2)(A)1. Community water systems must conduct initial monitoring to determine compliance with subsections (1)(A), (B) and (D) of this rule by December 31, 2007. For the purposes of monitoring for gross alpha particle activity, radium-226, and radium-228, the detection limits are:

(2)(A)1.A. The detection limit for gross alpha particle activity is three (3) pCi/L;

(2)(A)1.B. The detection limit for radium-226 is one (1) pCi/L; and

(2)(A)1.C. The detection limit for radium-228 is one (1) pCi/L.

(2)(A)2. Applicability and sampling location for existing community water systems or sources. All existing CWSs using groundwater, surface water, or systems using both ground and surface water must sample at every 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 must take each sample at the sample sampling point unless conditions make another sampling point more representative of each source or the department has designated a distribution system location, in accordance with part (2)(A)4.B.(III) of this rule.

(2)(A)3. Applicability and sampling location for new community water systems or sources. All new CWSs or CWSs that use a new source of water must begin to conduct initial monitoring for the new source within the first quarter after initiating use of the source. CWSs must 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.

(2)(A)4. Initial monitoring for gross alpha particle activity, radium-226, radium-228, and uranium.

(2)(A)4.A. Systems without acceptable historical data, as defined below, shall collect four (4) consecutive quarterly samples at all sampling points before December 31, 2007.

(2)(A)4.B. Grandfathering of data. Systems may use historical monitoring data collected at a sampling point to satisfy the initial monitoring requirements for that sampling point, for the following situations.

(2)(A)4.B.(I) To satisfy initial monitoring requirements, a community water system having only one (1) entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 1, 2000 and December 8, 2003.

(2)(A)4.B.(II) To satisfy initial monitoring requirements, a community water system with multiple entry points and having appropriate historical monitoring data for each entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 1, 2000 and December 8, 2003.

(2)(A)4.B.(III) To satisfy initial monitoring requirements, a community water system with appropriate historical data for a representative point in the distribution system may use the monitoring data from the last compliance monitoring period that began between June 1, 2000 and December 8, 2003, provided that the department finds that the historical data satisfactorily demonstrate that each entry point to the distribution system is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between entry points. The department must make a written finding indicating how the data conforms to the these requirements.

(2)(A)4.C. For gross alpha particle activity, uranium, radium-226, and radium-228 monitoring, the department will waive the final two (2) quarters of initial monitoring for a sampling point if the results of the samples from the previous two (2) quarters are below the detection limit.

(2)(A)4.D. If the average of the initial monitoring results for a sampling point is above the MCL, the system must collect and analyze quarterly samples at that sampling point until the system has

results from four (4) consecutive quarters that are at or below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the department.

(2)(A)3. Reduced monitoring. Community water systems may reduce the future frequency of monitoring from once every three (3) years to once every six (6) or nine (9) years at each sampling point, based on the following criteria.

(2)(A)3.A. If the average of the initial monitoring results for each contaminant (that is, gross alpha particle activity, uranium, radium-226, or radium-228) is below the detection limit specified in paragraph (2)(A)1. of this rule, the system must collect and analyze for that contaminant using at least one (1) sample at that sampling point every nine (9) years.

(2)(A)3.B. For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is at or above the detection limit but at or below one-half (1/2) the MCL, the system must collect and analyze for that contaminant using at least one (1) sample at that sampling point every six (6) years. For combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is at or above the detection limit but at or below one-half (1/2) the MCL, the system must collect and analyze for that contaminant using at least one (1) sample at that sampling point every six (6) years.

(2)(A)3.C. For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is above one-half (1/2) the MCL but at or below the MCL, the system must collect and analyze at least one (1) sample at that sampling point every three (3) years. For combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is above one-half (1/2) the MCL but at or below the MCL, the system must collect and analyze at least one (1) sample at that sampling point every three (3) sample at that sampling point every three (3) sample at that sampling point every three (3) years.

(2)(A)3.D. Systems must use the samples collected during the reduced monitoring period to determine the monitoring frequency for subsequent monitoring periods (for example, if a system's sampling point is on a nine (9)-year monitoring period, and the sample result is above one-half (1/2) the MCL, then the next monitoring period for that sampling point is three (3) years).

(2)(A)3.E. If a system has a monitoring result that exceeds the MCL while on reduced monitoring, the system must collect and analyze quarterly samples at that sampling point until the system has results from four (4) consecutive quarters that are below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the department.

(2)(A)4. Compositing. To fulfill quarterly monitoring requirements for gross alpha particle activity, radium-226, radium-228, or uranium, a system may composite up to four (4) consecutive quarterly samples from a single entry point if analysis is done within a year of the first sample. The department will treat analytical results from the composited as the average analytical result to determine compliance with the MCLs and the future monitoring frequency. If

the analytical result from the composited sample is greater than one-half (1/2) the MCL, the department may direct the system to take additional quarterly samples before allowing the system to sample under a reduced monitoring schedule.

(2)(A)5. Gross alpha particle activity measurement.

(2)(A)5.A. 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 five (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 fifteen (15) pCi/L.

(2)(A)5.B. The gross alpha measurement shall have a confidence interval of ninety-five percent (95%) (1.65 σ , where σ is the standard deviation of the net counting rate of the sample) for radium-226 and uranium. When a system uses a gross alpha particle activity measurement in lieu of a radium-226 and/or uranium measurement, the gross alpha particle activity analytical result will 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, one-half (1/2) the detection limit will be used to determine compliance and the future monitoring frequency.

(2)(B) Monitoring and Compliance Requirements for Beta Particle and Photon Radioactivity. To determine compliance with the maximum contaminant levels in subsection (1)(C) of this rule for beta particle and photon radioactivity, a system must monitor at a frequency as follows:

(2)(B)1. Community water systems (both surface and ground water) designated by the department as vulnerable must sample for beta particle and photon radioactivity. Systems must collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one (1) quarter after being notified by the department. Systems already designated by the department must continue to sample until the department reviews and either reaffirms or removes the designation.

(2)(B)1.A. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to fifty (50) pCi/L (screening level), the department may reduce the frequency of monitoring at that sampling point to once every three (3) years. Systems must collect all samples required in paragraph (2)(B)1. of this rule during the reduced monitoring period.

(2)(B)1.B. For systems in the vicinity of a nuclear facility, the department may allow the CWS to use environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the department determines such data is applicable to the community water system. In the event that there is a release from a nuclear facility, systems, using surveillance data must begin monitoring at the community water system's entry point(s) in accordance with paragraph (2)(B)1. of this rule.

(2)(B)2. Community water systems (both surface and ground water) designated by the department as using waters contaminated by effluents from nuclear facilities must sample for beta particle and photon radioactivity. Systems must collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one (1) 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.

(2)(B)2.A. Quarterly monitoring for gross particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three (3) monthly samples. The former is recommended.

(2)(B)2.B. For iodine-131, a composite of five (5) consecutive daily samples shall be analyzed once each quarter. As ordered by the department, more frequent monitoring shall be conducted when iodine-131 is identified in the finished water.

(2)(B)2.C. Annual monitoring for strontium-90 and tritium shall be conducted by means of analysis of four (4) quarterly samples, or with department approval, a composite of samples collected in four (4) consecutive quarters.

(2)(B)2.D. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to fifteen (15) pCi/L, the department may reduce the frequency of monitoring at that sampling point to every three (3) years. Systems must collect all samples required in paragraph (2)(B)2. of this rule during the reduced monitoring period.

(2)(B)2.E. For systems in the vicinity of a nuclear facility, the department may allow the CWSs to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the department determines if such data is applicable to the water system. In the event that there is a release from a nuclear facility, systems using surveillance data must begin monitoring at the community water system's entry point(s) in accordance with paragraph (2)(B)2. of this rule.

(2)(B)3. Community water systems designated by the department to monitor for beta particle and photon radioactivity shall not apply to the department for a waiver from the monitoring frequencies specified in paragraph (2)(B)1. or (2)(B)2. of this rule.

(2)(B)4. 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 are allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82.

(2)(B)5. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the screening level, an analysis of the sample must be performed to identify the major radioactive constituents present in the sample and the appropriate doses must be calculated and summed to determine compliance with paragraph (1)(C)1., using the formula in paragraph (1)(C)2. Doses must also be calculated and combined for measured levels of tritium and strontium to determine compliance.

(2)(B)6. Systems must monitor monthly at the sampling point(s) which exceed the maximum contaminant level in subsection (1)(C) beginning the month after the exceedance occurs. Systems must continue monthly monitoring until the system has established, by a rolling average of three (3) monthly samples, that the MCL is being met. Systems who establish that the MCL is being met must return to quarterly monitoring until they meet the requirements set forth in subparagraph (2)(B)1.B, or subparagraph (2)(B)2.A of this rule.

(2)(C) General Monitoring and Compliance Requirements for Radionuclides.

(2)(C)1. The department may require more frequent monitoring than specified in subsections (2)(A) and (2)(B) of this rule, or may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

(2)(C)2. Each public water system shall monitor at the time designated by the department during each compliance period.

(2)(C)3. Compliance with subsections (1)(A)-(D) of this rule will be determined based on the analytical result(s) obtained at each sampling point. If one (1) sampling point is in violation of an MCL, the system is in violation of the MCL.

(2)(C)3.A. 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.

(2)(C)3.B. For systems monitoring more than once per year, if any sample result will cause the running average to exceed the MCL at any sample point, the system is out of compliance with the MCL immediately.

(2)(C)3.C. Systems must include all samples taken and analyzed under the provisions of this section in determining compliance, even if that number is greater than the minimum required.

(2)(C)3.D. If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.

(2)(C)3.E. If a sample result is less than the detection limit, zero (0) will 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, one-half (1/2) the detection limit will be used to calculate the annual average.

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

(2)(C)5. If the MCL for radioactivity set forth in subsection (1)(A)-(D) of this rule is exceeded, the operator of a community water system must give notice to the department pursuant to <u>10</u> <u>CSR 60-7.010</u> and to the public as required by <u>10 CSR 60-8.010</u>.

(3) Non-Community Water Systems. Non-community water systems must monitor for radionuclides as directed by the department.

10 CSR 60-4.070 Secondary Contaminant Levels And Monitoring Requirements

PURPOSE: This rule establishes maximum contaminant levels and monitoring requirements for secondary contaminants.

(1) The following are the recommended secondary maximum contaminant levels for community and nontransient noncommunity water systems:

Contaminant	Level
Aluminum	0.05-0.2 mg/l
Chloride	250 mg/l
Color	15 color units
Copper	1.0 mg/l
Corrosivity	Noncorrosive
Fluoride	2.0 mg/l
Foaming agents	0.5 mg/l
Iron	0.3 mg/l
Manganese	0.05 mg/l
Odor	3 Threshold Odor number
рH	6.5-8.5
Silver	0.1 mg/l
Sulfate	250 mg/l
Total dissolved solids (TDS)	500 mg/l
Zinc	5 mg/l

(2) Groundwater systems shall take one (1) sample at each sampling point during each three (3)year compliance period beginning in the compliance period starting January 1, 1993. Surface water systems (or combined surface/ground) shall take one (1) sample annually at each sampling point beginning January 1, 1993. Color, foaming agents and odor should be analyzed at the water system site, as needed.

(3) For community water systems, if the result of analyses indicates that the secondary contaminant level for fluoride is exceeded, the supplier of water must report to the department within seven (7) days and must collect three (3) additional samples from designated sampling points to be submitted for analysis within one (1) month at intervals determined by the department. When the average of the results of four (4) analyses as required by this section exceeds the secondary contaminant level, the supplier of water must notify the department as required by <u>10 CSR 60-7.010</u> and give notice as required by <u>10 CSR 60-8.010</u>.

10 CSR 60-4.080 Operational Monitoring

PURPOSE: This rule establishes criteria for operation and operational monitoring.

Editor's Note: The following material is incorporated into this rule by reference:

1) Methods for Chemical Analysis of Water and Wastes, Revised March 1983 (Springfield VA: U.S. Department of Commerce, 1983);

2) Standard Methods for the Examination of Water and Wastewater, 18th Edition (Baltimore, MD, Victor Graphics, Inc., 1992).

In accordance with section 536.013(4), RSMo, the full text of material incorporated by reference will be made available to any interested person at the Office of the Secretary of State and the headquarters of the adopting state agency.

(1) Public water systems utilizing any treatment process must perform sufficient analyses to maintain control of the treatment process, using methods as required by 10 CSR 60-5.010 and as acceptable to the department.

(2) Automatic instrumentation may be used if properly installed, maintained and periodically calibrated against known standards prepared in accordance with *Standard Methods for the Examination of Water and Wastewater 1992*, American Public Health Association, 18th edition, New York, NY 1989 or *Methods for Chemical Analysis of Water and Wastes*, Environmental Monitoring Support Laboratory, USEPA, Cincinnati, Ohio 45268, EPA-600/4-79-020.

(3) Sufficient analyses must be done to assure control of water quality, the following requirements notwithstanding. Continuous monitoring and recording may be used for any operational analysis instead of grab sampling provided that the reqirements of section (2) are met. For those analyses where continuous monitoring is required, if there is a failure in the continuous monitoring equipment, grab sampling every two (2) hours of operation may be conducted in lieu of continuous monitoring but for no more than five (5) working days following the failure of the equipment. Applicable analyses and testing frequencies are as follows:

[Table not included in this text]

(4) The department, at its discretion, may conduct routine inspections of any public water system or make other necessary inspections to determine compliance with these rules.

(5) If, after investigation, the department finds that any public water system is incompetently supervised, improperly operated, inadequate, of defective design, or if the water fails to meet standards established in these rules, the water supplier must implement changes that may be required by the department.

(6) Every supplier of water to a public water system must disinfect all newly constructed or repaired water distribution mains, finished water storage facilities or wells by methods acceptable to the department before being placed in or returned to service.

(7) All finished water reservoirs must be covered by a permanent, protective material, adequately vented with properly screened openings.

(8) Chemicals, materials and protective coatings used in public water systems must be acceptable to the department.

(9) Public water systems must maintain a minimum positive pressure of twenty pounds per square inch (20 psi) throughout the distribution system under all normal operating conditions.

(10) Within thirty (30) days, public water systems must inform the department of a change of the person in charge of the water system.

(11) A supplier of water that adds fluoride to the water system must submit two (2) samples per month for analyses to the Division of Health Laboratory or another approved laboratory.

10 CSR 60-4.090 Maximum Contaminant Levels And Monitoring Requirements For Disinfection By-Products

PURPOSE: This rule establishes the maximum contaminant levels and monitoring requirements for total trihalomethanes and other disinfection by-products.

(1) Applicability. This rule applies to community water systems and nontransient noncommunity water systems that add a chemical disinfectant to the water in any part of the drinking water treatment process or provide water that contains a chemical disinfectant and to water treatment plants proposed for construction or major modification as indicated in this section. The rule has different requirements and compliance dates, based on system size and type of source water.

(1)(A) Community water systems serving ten thousand (10,000) or more people and using surface water or ground water under the direct influence of surface water (GWUDISW) must continue complying with the maximum contaminant level (MCL) of 0.10 for total trihalomethanes (TTHM) and section (3) of this rule until December 31, 2001. Beginning January 1, 2002, these systems and nontransient noncommunity water systems serving ten thousand (10,000) or more people and using surface water or GWUDISW must comply with sections (3)-(4) of this rule and the MCLs of 0.080 for TTHM, 0.060 for haloacetic acids (five) (HAA5), 0.010 for bromate, and 1.0 for chlorite.

(1)(B) Community water systems and nontransient noncommunity water systems serving less than ten thousand (10,000) people and using surface water or GWUDISW. Beginning January 1, 2004, these systems must comply with sections (3)-(4) of this rule and the MCLs of 0.080 for TTHM, 0.060 for HAA5, 0.010 for bromate, and 1.0 for chlorite.

(1)(C) Community water systems and nontransient noncommunity water systems using ground water. Beginning January 1, 2004, these systems must comply with sections (3)-(4) of this rule and the MCLs of 0.080 for TTHM, 0.060 for HAA5, 0.010 for bromate, and 1.0 for chlorite.

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Who must comply Compliance	When	MCLs (mg/l)
Requirements		I
Community water systems serving 10,000 Section (2) or more people and using surface water or groundwater under the direct influence of surface water (GWUDISW)	Oct. 11, 1981 to Dec. 31, 2001 	TTHM 0.10
Community water systems and Sections (3) nontransient noncommunity water and (4)	Jan. 1, 2002	TTHM 0.080 HAA5 0.060
systems serving 10,000 or more people and using surface water or GWUDISW		Bromate 0.010 Chlorite 1.0
Community water systems and Sections (3) nontransient noncommunity water and (4) systems serving less than 10,000 people and using surface water or	Jan. 1, 2004	TTHM 0.080 HAA5 0.060 Bromate 0.010 Chlorite 1 0
GWUDISW	 	+
Community water systems and Sections (3) nontransient noncommunity water and (4)	Jan. 1, 2004	THM 0.080 HAA5 0.060
systems using groundwater	 •	Bromate 0.010 Chlorite 1.0

Table 1. Compliance with Disinfection By-Product Requirements

(1)(D) Stage 2 Disinfectants/Disinfection By-Products--Locational Running Annual Average (LRAA) Compliance. The MCLs of 0.080 mg/L for TTHM and 0.060 mg/L for HAA5 must be complied with as a locational running annual average at each monitoring location beginning with the date specified for Stage 2 compliance in 10 CSR 60-4.094(1)(C).

(1)(E) Beginning September 1 2000, any water treatment plant proposed for construction or major modification must be designed to meet the disinfection by-product MCLs of 0.080 for

TTHM, 0.060 for HAA5, 0.010 for bromate, and 1.0 for chlorite and the requirements of sections (3) and (4) of this rule.

(2) Compliance with the TTHM MCL of 0.10.

(2)(A) A supplier of water must collect samples of the product water for analyses as follows:

(2)(A)1. Community water systems must perform sampling at quarterly intervals.

(2)(A)1.A. Analyses for TTHM shall be performed at quarterly intervals on at least four (4) water samples for each treatment plant used by the system.

(2)(A)1.B. The minimum number of samples required shall be based on the number of treatment plants used by the system except that multiple wells drawing raw water from a single aquifer, with the department's approval, may be considered one (1) treatment plant for determining the minimum number of samples.

(2)(A)1.C. Community water systems serving fewer than ten thousand (10,000) persons, at the discretion of the department, may be required to submit fewer samples; and

(2)(A)2. All samples taken within an established frequency shall be collected within a twenty-four (24)-hour period.

(2)(B) At least twenty-five percent (25%) of the samples shall be taken at locations within the distribution system reflecting the maximum residence time of the water in the system. The remaining shall be taken at representative locations in the distribution system, taking into account the number of persons served, different sources of water, and different treatment methods employed.

(2)(C) The results of all analyses per quarter shall be arithmetically averaged and all samples collected shall be used in the computation of the average.

(2)(D) Upon a community water system's written request, the department may reduce the TTHM analysis monitoring frequency to a minimum of one (1) sample per quarter.

(2)(D)1. The sample shall be taken at a point in the distribution system that reflects the maximum residence time of the water in the system.

(2)(D)2. The department shall provide, in writing, a determination that local conditions and data from at least one (1) year of monitoring in accordance with subsection (2)(A) of this rule demonstrate that TTHM concentrations will be consistently below the MCL.

(2)(D)3. The supplier of water immediately shall begin monitoring in accordance with the requirements of subsection (2)(A) of this rule upon finding that--

(2)(D)3.A. At any time during the reduced monitoring, the results from any analysis for TTHM exceed 0.10 milligrams per liter (mg/L) and the results are confirmed by at least one (1) check sample taken promptly after the results are received; or

(2)(D)3.B. The system makes any significant change(s) to its source of water or treatment process; and

(2)(D)3.C. This monitoring shall continue at least one (1) year before the frequency may be reduced again.

(2)(E) Upon the written request of a community water system that utilizes only groundwater sources, the department may allow the water system to substitute a minimum of one (1) sample per year for maximum TTHM potential in place of quarterly sampling for TTHM.

(2)(E)1. This monitoring frequency applies separately to each treatment plant used in the system.

(2)(E)2. The sample shall be taken at a point in the distribution system that reflects the maximum residence time of the water in the system.

(2)(E)3. The department shall provide, in writing, a determination that--

(2)(E)3.A. The system has a maximum TTHM potential of less than 0.10 mg/L based upon data submitted by the water supplier; and

(2)(E)3.B. Based upon an assessment of local conditions, the system is not likely to approach or exceed the MCL for TTHM.

(2)(E)4. A water supplier immediately shall begin monitoring in accordance with the requirements of subsection (2)(A) of this rule upon finding that--

(2)(E)4.A. The results from any analysis taken by the water supplier for maximum TTHM potential are equal to or greater than 0.10 mg/L; and

(2)(E)4.B. The results are confirmed by at least one (1) check sample which was taken promptly after the results were received; and

(2)(E)4.C. This monitoring shall continue for at least one (1) year before the frequency may be reduced again.

(2)(E)5. If the system makes any significant change(s) in the raw water or treatment program at any time during the period of reduced monitoring frequency, the water supplier immediately shall collect an additional sample to be analyzed for maximum TTHM potential. The sample shall be taken at a point in the distribution system that reflects the maximum residence time of the water in the system. The results of the analysis shall be used to determine whether the system must comply with the monitoring requirements of subsection (2)(A) of this rule.

(2)(F) Compliance with the MCL of 0.10 for TTHM shall be determined based on a running annual average of quarterly samples collected by the supplier of water as prescribed in subsection (2)(A). If the average of samples covering any twelve (12)-month period exceeds the MCL, the supplier of water shall report to the department pursuant to 10 CSR 60-7.010 and notify the public pursuant to 10 CSR 60-8.010. Monitoring after public notification shall be at a frequency designated by the department and shall continue until a monitoring schedule as a condition to a variance, exemption, or enforcement action shall become effective.

(2)(G) Samples for TTHM shall be dechlorinated upon collection to prevent further production of trihalomethanes. Samples for maximum TTHM potential shall not be dechlorinated and must be held for seven (7) days at twenty-five degrees Celsius (25° C) prior to analysis.

(2)(H) At the option of the department, monitoring frequencies may be increased above the minimum where this is necessary to detect variations of TTHM levels within the distribution system.

(2)(I) Before a community water system makes any significant modifications to its existing treatment process for the purposes of achieving compliance with this rule, the system must obtain departmental approval of its proposed modifications and those safeguards that it will implement to ensure that the microbiological quality of the drinking water served by the system will not be adversely affected by the modifications. At a minimum, the department shall require the system modifying its disinfection practice to--

(2)(I)1. Evaluate the source water for microbiological quality;

(2)(I)2. Evaluate its existing treatment practices and consider improvements that will minimize disinfectant demand and optimize finished water quality throughout the distribution system; and

(2)(I)3. Conduct additional monitoring and studies as required by the department to assure continued maintenance of optimal biological quality in finished water.

(3) Monitoring Requirements and Plan.

(3)(A) General Requirements.

(3)(A)1. Systems must take all samples during normal operating conditions.

(3)(A)2. With department approval, systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required. The department may approve as one treatment plant--

(3)(A)2.A. Multiple wells located in the same unconsolidated formation; or

(3)(A)2.B. Multiple wells located in the same consolidated formation.

(3)(A)3. Each system required to monitor under this section $(\underline{3})$ must develop and implement a monitoring plan. This includes systems purchasing water, unless the system is included in the seller's monitoring plan.

(3)(A)3.A. The monitoring plan must include at least the following elements:

(3)(A)3.A.(I) Specific locations and schedules for collecting samples;

(3)(A)3.A.(II) How the system will calculate compliance with MCLs, maximum residual disinfection levels (MRDLs), and treatment techniques; and

(3)(A)3.A.(III) If approved for monitoring as a consecutive system, or if providing water to a consecutive system, under the provisions of 10 CSR 60-4.010(6), the sampling plan must reflect the entire distribution system.

(3)(A)3.B. The system must maintain the monitoring 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 section (1) of this rule.

(3)(A)3.C. All systems serving more than three thousand three hundred (>3,300) people and using surface water or ground water under the direct influence of surface water (GWUDISW) must submit a copy of the monitoring plan to the department no later than the date of the first report required under 10 CSR 60-7.010(6). The department may also require the plan to be submitted by any other system at the department's discretion. After review, the department may require changes in any plan elements.

(3)(A)3.D. Systems that purchase water must provide a monitoring plan and meet the monitoring requirements of this section unless the purchaser is included in the seller's monitoring plan.

(3)(A)4. Failure to monitor in accordance with the monitoring plan is a monitoring violation.

(3)(A)5. Failure to monitor will be treated as a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs.

(3)(A)6. Systems may use only data collected under the provisions of this section (3) or EPA's Information Collection Rule (40 CFR Subpart M) to qualify for reduced monitoring.

(3)(B) Monitoring Requirements for Disinfection By-Products.

(3)(B)1. TTHMs and HAA5.

(3)(B)1.A. Routine monitoring. Systems must monitor at the frequency indicated in Table 2.

Table 2. Routine Monitoring Frequency for TTHM and HAA5.

Updated by Janelle Lemen 12/10/2012 3:20 PM

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	*	·
Surface water or GWUDISW of all samples	Four (4) water samples per	At least 25 percent
system serving at least quarter at locations	quarter per treatment plant.	collected each
10,000 people. maximum residence time.		representing
taken at locations		Remaining samples
at least average		representative of
the distribution		residence time in
representing the entire		system and
gystom taking into		distribution
porgona gowied		account number of
persons served,		different sources
or water, and		different treatment
methods.1	+	+
Surface water or GWUDISW	One (1) water sample per	Locations
representing maximum system serving from 500 to 9,999 people.	quarter per treatment plant. 	residence time.1
	+	+
Surface water or GWUDISW	One (1) sample per year per	Locations
system serving fewer than	treatment plant during month	residence time.1 If
500 people.	of warmest water temperature.	average of annual
taker) averade		than one sample is
in many exceeds		MCL, system must
increase monitoring		to one sample per
treatment plant	l	per quarter, taken
at a point		reflecting the
maximum residence		time in the
distribution system,		until system meets
reduced		monitoring criteria
in subsection		(3)(C) of this
rule.	+	+

System using only representing maximum	One (1) water sample per	Locations
groundwater not under the direct influence of surface water using chemical disinfectant and serving at least 10,000 people.	quarter per treatment plant.2 	residence time.1
System using only representing maximum	One (1) sample per year per	Locations
groundwater not under the the sample	treatment plant2 during month	residence time.1 If
direct influence of annual samples,	of warmest water temperature.	(or average of
surface water using sample is		if more than one
chemical disinfectant and the system		taken) exceeds MCL,
serving fewer than 10,000 monitoring to one		must increase
persons. treatment plant per		sample per
point reflecting		quarter, taken at a
		the maximum
residence time in the		distribution
system, until system		meets the criteria
in subsection		(3)(C) of this rule
for reduced		monitoring.
	+	+

1 If a system elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

2 Multiple wells drawing water from a single aquifer may be considered one (1) treatment plant for determining the minimum number of samples required, with department approval.

(3)(B)1.B. Systems may reduce monitoring except as otherwise provided, in accordance with Table 3.

Table 3. Reduced Monitoring Frequency TTHM and HAA5

-----+---+----+ _____ You may reduce monitoring if you have monitored at If you are a . . . least one year and your . . . то this level _____ Surface water or GWUDISW |TTHM annual average One (1) sample per treatment plant system serving at least |≤0.040 mg/L and HAA5 |per quarter at distribution system 10,000 persons which has a |annual average ≤ 0.030 |location reflecting maximum source water annual average |mg/L |residence time. total organic carbon (TOC) level, before any treatment, ≤4.0 mg/L _____ Surface water or GWUDISW TTHM annual average One (1) sample per treatment system serving from 500 to $|\leq 0.040 \text{ mg/L}$ and HAA5 annual |plant per year at distribution 9,999 persons which has a |average ≤0.030 mg/L. |system location reflecting source water annual average maximum residence time during TOC level, before any |month of warmest water temperature. treatment, ≤4.0 mg/L |NOTE: Any surface water or GWUDISW system serving fewer than 500 persons may not reduce its monitoring to less than one sample per treatment plant per year. _____ System using only groundwater |TTHM annual average $\leq 0.040 \text{ mg/L}$ |One (1) sample per treatment plant not under direct influence of|and HAA5 annual average ≤0.030 |per year at distribution system surface water using chemical |mg/L. location reflecting maximum disinfectant and serving at residence time during month least 10,000 persons. of warmest water temperature. System using only groundwater | TTHM annual average ≤0.040 mg/L|One (1) sample

per treatment plant

not under direct influence of years at distribution	and HAA5 annual average ≤0.030	every three (3)
surface water using chemical reflecting maximum	mg/L for two consecutive years	system location
disinfectant and serving during month of	OR TTHM annual average ≤0.20	residence time
fewer than 10,000 persons.	mg/L and HAA5 annual average	warmest water
comperacare, wren	≤0.015 mg/L for one year.	the three-year
cycle beginning		on January 1
following quarter	•	
qualifies for		in which system
monitoring.		reduced
	+	+

(3)(B)1.C. Monitoring requirements for source water TOC. In order to qualify for reduced monitoring for TTHM and HAA5 under subparagraph (3)(B)1.B. of this rule, surface water and ground water under the direct influence of surface water (GWUDISW) systems not monitoring under the provisions of subsection (3)(D) of this rule must take monthly TOC samples every thirty (30) days at a location prior to any treatment, beginning April 1, 2008, or earlier, if specified by the department. In addition to meeting other criteria for reduced monitoring in subparagraph (3)(B)1.B. of this rule, the source water TOC running annual average must be less than or equal to 4.0 mg/L (based on the most recent four (4) quarters of monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5 under subparagraph (3)(B)1.B. of this rule, a system may reduce source water TOC monitoring to quarterly TOC samples taken every ninety (90) days at a location prior to any treatment.

(3)(B)1.D. Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the result of the sample (for systems which must monitor no more frequently than annually) is no more than 0.060 mg/L for TTHMs and 0.045 mg/L for HAA5. Systems that do not meet these levels must resume monitoring at the frequency identified in Table 2: Routine Monitoring in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L for TTHMs and 0.045 mg/L for HAA5. For systems using only ground water not under the direct influence of surface water and serving fewer than ten thousand (10,000) persons, if either the TTHM annual average is greater than 0.080 mg/L or the HAA5 annual average is greater than 0.060 mg/L, the system must go to increased monitoring. Systems on increased monitoring may return to routine monitoring if after at least one (1) year of monitoring their TTHM annual average is less than or equal to 0.045 mg/L, respectively.

(3)(B)1.E. The department may return a system to routine monitoring at the department's discretion.

(3)(B)2. Chlorite. Community and nontransient noncommunity water systems using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.

(3)(B)2.A. Routine monitoring.

(3)(B)2.A.(I) Daily monitoring. Systems must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the 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, in addition to the sample required at the entrance to the distribution system.

(3)(B)2.A.(II) Monthly monitoring. Systems must take a three (3)-sample set each month in the distribution system. The system must take one (1) 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 must be conducted in the same manner (as three (3)-sample sets, at the specified locations). The system may use the results of additional monitoring conducted under subparagraph (3)(B)2.B. to meet the requirement for monthly monitoring.

(3)(B)2.B. Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system is required to take three (3) chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(3)(B)2.C. Reduced monitoring.

(3)(B)2.C.(I) Chlorite monitoring at the entrance to the distribution system required by part (3)(B)2.A.(I) of this rule may not be reduced.

(3)(B)2.C.(II) Chlorite monitoring in the distribution system required by part (3)(B)2.A.(II) of this rule may be reduced to one (1) three (3)-sample set per quarter after one (1) year of monitoring where no individual chlorite sample taken in the distribution system under part (3)(B)2.A.(II) of this rule has exceeded the chlorite MCL and the system has not been required to conduct monitoring under subparagraph (3)(B)2.B. of this rule. The system may remain on the reduced monitoring schedule until either any of the three (3) individual chlorite samples taken quarterly in the distribution system under part (3)(B)2.A.(II) of this rule exceeds the chlorite MCL or the system is required to conduct monitoring under subparagraph (3)(B)2.A.(II) of this rule exceeds the chlorite MCL or the system is required to conduct monitoring under subparagraph (3)(B)2.A.(II) of this rule exceeds the chlorite MCL or the system must revert to routine monitoring.

(**3**)(**B**)3. Bromate.

(3)(B)3.A. Routine monitoring. Community and nontransient noncommunity systems using ozone for disinfection or oxidation must take one (1) sample per month for each treatment plant

in the system using ozone. Systems must take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

(3)(B)3.B. Reduced monitoring.

(3)(B)3.B.(I) Through March 31, 2009, systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system's average source water bromide concentration is less than 0.05 mg/L based on representative monthly bromide measurements for one (1) 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 on representative monthly measurements. If the running annual average source water bromide concentration is greater than or equal to 0.05 mg/L, the system must resume routine monitoring required by subparagraph (3)(B)3.A. of this rule in the following month.

(3)(B)3.B.(II) Beginning April 1, 2009, systems may no longer use the provisions of the preceding part (3)(B)3.B.(I) to qualify for reduced monitoring. A system required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system's running annual average bromate concentration is less than or equal to 0.0025 mg/L based on monthly bromate measurements under subparagraph (3)(B)3.A. of this rule for the most recent four (4) quarters, with samples analyzed using Method 317.0 Revision 2.0, 326.0, or 321.8. If a system has qualified for reduced bromate monitoring under part (3)(B)3.B.(I), that system may remain on reduced monitoring as long as the running annual average of quarterly bromate samples is ≤ 0.0025 mg/L based on samples analyzed using Method 317.0 Revision 2.0, 326.0, or 321.8. If the running annual average bromate concentration is >0.0025 mg/L, the system must resume routine monitoring required by subparagraph (3)(B)3.A. of this rule.

(3)(C) Monitoring Requirements for Disinfectant Residuals.

(3)(C)1. Chlorine and chloramines.

(3)(C)1.A. Routine monitoring. Community and nontransient noncommunity water systems must measure the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in <u>10 CSR 60-4.020</u>. System using surface water or ground water under the direct influence of surface water may use the results of residual disinfectant concentration sampling conducted under <u>10 CSR 60-4.080(3)</u> and <u>10 CSR 60-4.055(4)</u>, in lieu of taking separate samples.

(3)(C)1.B. Reduced monitoring. Monitoring may not be reduced.

(3)(C)2. Chlorine dioxide.

(3)(C)2.A. Routine monitoring. Community, nontransient noncommunity, and transient noncommunity water systems that use chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that detects chlorine dioxide, the system must take additional samples in the distribution system the following day in addition to the sample required at the entrance to the distribution system.

(3)(C)2.B. Additional monitoring. On each day following a routine sample monitoring result that detects chlorine dioxide, the system is required to take three (3) chlorine dioxide distribution system samples as close to the first customer as possible, at intervals of at least six (6) hours. If 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, or if chlorine addition points after the entrance to the distribution system (that is, no booster chlorination), the system must 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 (that is, no booster chlorination), the system must 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 (1) or more disinfection addition points after the entrance to the distribution system must take one (1) sample at each of the following locations: as close to the first customer as possible; in a location representative of average residence time; and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(3)(C)2.C. Reduced monitoring. Chlorine dioxide monitoring may not be reduced.

(3)(D) Monitoring Requirements for Disinfection By-Product Precursors (DBPP).

(3)(D)1. Routine monitoring. Systems using surface water or ground water under the direct influence of surface water and using conventional filtration treatment must monitor each treatment plant for total organic carbon (TOC) no later than the point of combined filter effluent turbidity monitoring and representative of the treated water. These systems must also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one (1) paired sample and one (1) source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

(3)(D)2. Reduced monitoring. Systems using surface water or ground water under the direct influence of surface water with an average treated water TOC of less than 2.0 mg/L for two (2) consecutive years, or less than 1.0 mg/L for one (1) year, may reduce monitoring for both TOC and alkalinity to one (1) paired sample and one (1) source water alkalinity sample per plant per quarter. The system must revert to routine monitoring in the month following the quarter when the annual average treated water TOC greater than or equal to 2.0 mg/L.

(3)(E) Bromide. Systems required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly measurements for one (1) year. The system must continue bromide monitoring to remain on reduced bromate monitoring.

(4) Compliance Requirements.

(4)(A) General Requirements.

(4)(A)1. 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.

(4)(A)2. Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

(4)(A)3. All samples taken and analyzed under the provisions of this rule must be included in determining compliance, even if that number is greater than the minimum required.

(4)(A)4. 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.

(4)(B) Disinfection By-Products.

(4)(B)1. TTHMs and HAA5.

(4)(B)1.A. For systems monitoring quarterly, compliance must be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system as prescribed by paragraph (3)(B)1. of this rule.

(4)(B)1.B. For systems monitoring less frequently than quarterly, systems demonstrate compliance if the average of samples taken that year under the provisions of paragraph (3)(B)1. of this rule does not exceed the MCL. If the average of these samples exceeds the MCL, the system must increase monitoring to once per quarter per treatment plant. The system is not in violation 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 to quarterly monitoring must calculate compliance by including the sample that triggered the increased monitoring plus the following three (3) quarters of monitoring.

(4)(B)1.C. If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to 10 CSR 60-8.010 addition to reporting to the department pursuant to 10 CSR 60-7.010.

(4)(B)1.D. If a public water system fails to complete four (4) consecutive quarters of monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(4)(B)2. Bromate. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample,

the average of all samples taken during the month) collected by the system as prescribed by paragraph (3)(B)3. of this rule. If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to 10 CSR 60-8.010, in addition to reporting to the department pursuant to 10 CSR 60-8.010. If a PWS fails to complete twelve (12) consecutive months' monitoring, compliance with the MCL for the last four (4)-quarter compliance period must be based on an average of the available data.

(4)(B)3. Chlorite. Compliance must be based on an arithmetic average of each three (3) sample set taken in the distribution system as prescribed by item (3)(B)2.A.(II) and subparagraph (3)(B)2.B. of this rule. If the arithmetic average of any three (3) sample set exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to 10 CSR 60-8.010, in addition to reporting to the department pursuant to 10 CSR 60-7.010.

(4)(C) Disinfectant Residuals.

(4)(C)1. Chlorine and chloramines.

(4)(C)1.A. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under paragraph (3)(C)1. of this rule. If the average covering any consecutive four (4)-quarter period exceeds the MRDL, the system is in violation of the MRDL and must notify the public pursuant to 10 CSR 60-8.010, in addition to reporting to the department pursuant to 10 CSR 60-7.010.

(4)(C)1.B. In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to 10 CSR 60-7.010(6) must clearly indicate which residual disinfectant was analyzed for each sample.

(4)(C)2. Chlorine dioxide.

(4)(C)2.A. Acute violations. Compliance must be based on consecutive daily samples collected by the system under paragraph (3)(C)2. of this rule. If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (1) (or more) of the three (3) samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and must take immediate corrective action to lower the level of chlorine dioxide below the MRDL and must notify the public pursuant to the procedures for acute health risks in 10 CSR 60-8.010(2), in addition to reporting to the department pursuant to 10 CSR 60-7.010. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system must notify the public of the violation in accordance with the provisions for acute violations under 10 CSR 60-8.010(2), in addition to reporting to the department pursuant to reporting to the department pursuant to 10 CSR 60-7.010.

(4)(C)2.B. Nonacute violations. Compliance must be based on consecutive daily samples collected by the system in compliance with this rule.

(4)(C)2.B.(I) If any two (2) consecutive daily samples taken at the entrance to the distribution system detect chlorine dioxide, the system must take corrective action to lower the chlorine dioxide level.

(4)(C)2.B.(II) If any two (2) consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and notify the public pursuant to the procedures for nonacute health risks in 10 CSR 60-8.010(3), in addition to reporting to the department pursuant to 10 CSR 60-7.010. 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 in accordance with the provisions for nonacute violations in 10 CSR 60-8.010(3), in addition to reporting to the department pursuant to 10 CSR 60-7.010.

(4)(D) Disinfection By-Product Precursors (DBPP).

(4)(D)1. Systems using surface water or ground water under the direct influence of surface water and using conventional filtration treatment must operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in this rule unless the system meets at least one (1) of the alternative compliance criteria listed here. These systems must still comply with monitoring requirements in sections (3)-(4) of this rule. The alternative compliance criteria for enhanced coagulation and enhanced softening are:

(4)(D)1.A. The system's source water TOC level, measured according to 10 CSR 60-5.010, is less than 2.0 mg/L, calculated quarterly as a running annual average;

(4)(D)1.B. The system's treated water TOC level, measured according to <u>10 CSR 60-5.010</u>, is less than 2.0 mg/L, calculated quarterly as a running annual average;

(4)(D)1.C. The system's source water TOC level, measured according to 10 CSR 60-5.010, is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity, measured according to 10 CSR 60-5.010, is greater than sixty (60) mg/L (as CaCO₃), calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or prior to the effective date for compliance with this rule, the system has made a clear and irrevocable financial commitment not later than the effective date for compliance with this rule to use technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively. Systems must submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the department for approval not later than the effective date for compliance with this rule. These technologies must be installed and operating not later than June 30, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a violation;

(4)(D)1.D. The TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system;

(4)(D)1.E. The system's source water SUVA, prior to any treatment and measured monthly according to 10 CSR 60-5.010, is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average. SUVA refers to Specific Ultraviolet Absorption at two hundred fifty-four nanometers (254 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); and

(4)(D)1.F. The system's finished water SUVA, measured monthly according to 10 CSR 60-5.010, is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(4)(D)2. Additional alternative compliance criteria for softening systems. Systems practicing enhanced softening that cannot achieve the Step 1 TOC removals may use the alternative compliance criteria listed here in lieu of complying with paragraph (4)(D)3. of this rule. Systems must still comply with monitoring requirements in sections (3)-(4) of this rule.

(4)(D)2.A. Softening that results in lowering the treated water alkalinity to less than sixty (60) mg/L (as CaCO₃), measured monthly according to 10 CSR 60-5.010 and calculated quarterly as a running annual average.

(4)(D)2.B. Softening that results in removing at least ten (10) mg/L of magnesium hardness (as CaCO₃), measured monthly according to 10 CSR 60-5.010 and calculated quarterly as an annual running average.

(4)(D)3. Enhanced coagulation and enhanced softening performance requirements.

(4)(D)3.A. Systems must achieve the percent reduction of TOC specified in Table 4 between the source water and the combined filter effluent, unless the department approves a system's request for alternate minimum TOC removal (Step 2) requirements. Systems may begin monitoring to determine whether Step 1 TOC removals can be met twelve (12) months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that does not monitor during this period, and then determines in the first twelve (12) months after the compliance date that it is not able to meet the Step 1 requirements and must therefore apply for alternate minimum TOC removal (Step 2) requirements 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 removal (Step 1) requirements any time after the compliance date. For systems required to meet Step 1 TOC removal (Step 2) requirements in violation of the treatment technique requirements and must notify the public

pursuant to <u>10 CSR 60-8.010</u> in addition to reporting to the department pursuant to <u>10 CSR 60-7.010</u>.

(4)(D)3.B. Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with <u>10 CSR 60-5.010</u>. 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 for Surface Water and GWUDISW Systems Using Conventional Treatment1,2			
	Source water alkalinity, mg/L as CaCO ₃		
Source water TOC, mg/L	0-60	>60 - 120	>120 <mark>3</mark>
>2.0-4.0 >4.0-8.0 >8.0	35.0% 45.0% 50.0%	25.0% 35.0% 40.0%	15.0% 25.0% 30.0%

Table 4: Required step 1 TOC Reduction

1 Systems meeting at least one of the conditions in paragraph (4)(D)1. of this rule are not required to operate with enhanced coagulation.

2 Softening systems meeting one of the alternative compliance criteria in paragraph (4)(D)1. of this rule are not required to operate with enhanced softening.

3 Systems practicing softening must meet the TOC removal requirements in this column.

(4)(D)3.C. Conventional treatment systems using surface water or ground water under the direct influence of surface water that cannot achieve the Step 1 TOC removals due to water quality parameters or operational constraints must apply to the department, within three (3) months of failure to achieve the Step 1 TOC removals, for approval of alternative minimum TOC removal (Step 2) requirements submitted by the system. If the department approves the alternative minimum TOC removal (Step 2) requirements, the department may make those requirements retroactive for the purposes of determining compliance. Until the department approves the alternate minimum TOC removal (Step 2) requirements, the system must meet the Step 1 TOC removals.

(4)(D)3.D. Alternate minimum TOC removal (Step 2) requirements. Applications made to the department by enhanced coagulation systems for approval of alternative minimum TOC removal (Step 2) requirements under subparagraph (4)(D)3.C. of this rule must include, as a minimum, results of bench- or pilot-scale testing conducted under this subparagraph (4)(D)3.D. and used to determine the alternate enhanced coagulation level.

(4)(D)3.D.(I) Alternate enhanced coagulation level is defined as coagulation at a coagulant dose and pH as determined by the method described here such that an incremental addition of ten (10) mg/L of alum (or equivalent amount of ferric salt) results in a TOC removal of less than or equal to 0.3 mg/L. The percent removal of TOC at this point on the "TOC removal versus coagulant dose" curve is then defined as the minimum TOC removal required for the system. Once approved by the department, this minimum requirement supersedes the minimum TOC removal required by Table 4 of this rule. This requirement will be effective until such time as the department approves a new value based on the results of a new bench- and pilot-scale test. Failure to achieve department-set alternative minimum TOC removal levels is a violation.

(4)(D)3.D.(II) Bench- or pilot-scale testing of enhanced coagulation must be conducted by using representative water samples and adding 10 mg/L increments of alum (or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in Table 5.

	+
Alkalinity (mg/L as CaCO ₃)	Target pH
0-60 >60-120 >120-240 >240	5.5 6.3 7.0 7.5
	+

Table 5: Enhanced CoagulationStep 2 Target pH

(4)(D)3.D.(III) For waters with alkalinities of less than sixty (60) mg/L for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, the system must add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added (or equivalent addition of iron coagulant) is reached.

(4)(D)3.D.(IV) The system may operate at any coagulant dose or pH necessary (consistent with other regulatory requirements) to achieve the minimum TOC percent removal approved under subsection (3)(C) of this rule.

(4)(D)3.D.(V) If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), the water is deemed to contain TOC not amenable to enhanced coagulation. The system may then apply to the department for a waiver of enhanced coagulation requirements.

(4)(D)4. Compliance calculations.

(4)(D)4.A. Systems using surface water or ground water under the direct influence of surface water, other than those identified in paragraphs (4)(D)1. or 2. of this rule, must comply with requirements contained in subparagraph (4)(D)3.B. of this rule. Systems must calculate

compliance quarterly, beginning after the system has collected twelve (12) months of data, by determining an annual average using the following method:

(4)(D)4.A.(I) Determine actual monthly TOC percent removal, equal to: (1 - (treated water TOC/source water TOC)) x 100;

(4)(D)4.A.(II) Determine the required monthly TOC percent removal;

(4)(D)4.A.(III) Divide the value in part (4)(D)4.A.(I) by the value in part (4)(D)4.A(II); and

(4)(D)4.A.(IV) Add together the results of part (4)(D)4.A.(III) for the last twelve (12) months and divide by twelve (12). If the value calculated is less than 1.00, the system is not in compliance with the TOC percent removal requirements.

(4)(D)4.B. Systems may use the following provisions in lieu of the calculations in subparagraph (4)(D)4.A. of this rule to determine compliance with TOC percent removal requirements:

(4)(D)4.B.(I) In any month that the system's treated or source water TOC level, measured according to 10 CSR 60-5.010, is less than 2.0 mg/L, the system may assign a monthly value of 1.0 (in lieu of the value calculated in part (4)(D)4.A.(III) of this rule);

(4)(D)4.B.(II) In any month that a system practicing softening removes at least 10 mg/L of magnesium hardness (as CaCO₃), the system may assign a monthly value of 1.0 (in lieu of the value calculated in part (4)(D)4.A.(III) of this rule);

(4)(D)4.B.(III) In any month that the system's source water SUVA, prior to any treatment and measured according to 10 CSR 60-5.010, is less than or equal to 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in part (4)(D)4.A.(III) of this rule);

(4)(D)4.B.(IV) In any month that the system's finished water SUVA, measured according to $\underline{10}$ <u>CSR 60-5.010</u>, is less than or equal to 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in part (4)(D)4.A.(III) of this rule); and

(4)(D)4.B.(V) In any month that a system practicing enhanced softening lowers alkalinity below sixty (60) mg/L (as CaCO₃), the system may assign a monthly value of 1.0 (in lieu of the value calculated in part (4)(D)4.A.(III) of this rule).

(4)(D)4.C. Systems using conventional treatment and surface water or ground water under the direct influence of surface water may also comply with the requirements of this rule by meeting the criteria in paragraph (4)(D)1 or 2. of this rule.

10 CSR 60-4.092 Initial Distribution System Evaluation

PURPOSE: This rule incorporates by reference the Stage 2 Disinfectants/Disinfection By-Products Rule initial distribution system evaluation requirements found in 40 CFR part 141 subpart U, July 1, 2007. PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. This material as incorporated by reference in this rule shall be maintained by the agency at its headquarters and shall be made available to the public for inspection and copying at no more than the actual cost of reproduction. This note applies only to the reference material. The entire text of the rule is printed here.

(1) The regulations set forth in 40 CFR part 141 subpart U, July 1, 2007, are incorporated by reference, subject to the clarification in section (2) of this rule. The *Code of Federal Regulations* is published by the U.S. Government and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov. The address is: U.S. Government Printing Office, U.S. Superintendent of Documents, Washington, DC 20402-0001. This does not include later amendments or additions.

(2) Clarifications to the Incorporation by Reference.

(2)(A) Missouri Department of Natural Resources shall be substituted for U.S. Environmental Protection Agency, EPA, the state, or primacy agency wherever those terms appear in the incorporated subpart.

(2)(B) "Director" shall be substituted for administrator wherever that term appears in the incorporated subpart.

10 CSR 60-4.094 Stage 2 Disinfectants/Disinfection By-Products

PURPOSE: This rule establishes monitoring and other requirements for achieving compliance with maximum contaminant levels based on locational running annual averages for certain disinfection by-products and for achieving compliance with maximum residual disinfectant levels for chlorine and chloramine for certain consecutive systems. This rule incorporates the requirements of subpart V of 40 CFR part 141, Stage 2 Disinfectants/Disinfection By-Products, published in the January 4, 2006, Federal Register.

(1) Stage 2 Disinfectants/Disinfection By-Products (D/DBP) Rule General Requirements.

(1)(A) The requirements of this rule constitute national primary drinking water regulations. This rule establishes monitoring and other requirements for achieving compliance with maximum contaminant levels based on locational running annual averages (LRAA) for total trihalomethanes (TTHM) and haloacetic acids five (HAA5), and for achieving compliance with maximum residual disinfectant residuals for chlorine and chloramine for certain consecutive systems.

(1)(B) Applicability. This rule applies to community water systems and nontransient noncommunity water systems that use a primary or residual disinfectant other than ultraviolet light or deliver water that has been treated with a primary or residual disinfectant other than ultraviolet light.

(1)(C) Compliance Schedules.

(1)(C)1. Systems must comply with the requirements in this rule on the following schedule. The department may grant up to an additional twenty-four (24) months beyond the deadlines specified below for compliance with maximum contaminant levels (MCL) and operational evaluation levels if capital improvements are required to comply with an MCL.

(1)(C)1.A. Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system.

(1)(C)1.A.(I) Systems serving \geq 100,000 population must comply with this rule by April 1, 2012.

(1)(C)1.A.(II) Systems serving 50,000-99,999 population must comply with this rule by October 1, 2012.

(1)(C)1.A.(III) Systems serving 10,000-49,999 population must comply with this rule by October 1, 2013.

(1)(C)1.A.(IV) Systems serving <10,000 population must comply with this rule by October 1, 2013, if no *Cryptosporidium* monitoring is required under 10 CSR 60-4.052(2)(A)4. or October 1, 2014, if *Cryptosporidium* monitoring is required under 10 CSR 60-4.052(2)(A)4.

(1)(C)1.B. Other systems that are part of a combined distribution system. Consecutive system or wholesale system must comply with this rule at the same time as the system with the earliest compliance date in the combined distribution system.

(1)(C)2. Monitoring frequency is specified in paragraph (2)(A)2. of this rule.

(1)(C)2.A. If you are required to conduct quarterly monitoring, you must begin monitoring in the first full calendar quarter that includes the applicable compliance date in paragraph (1)(C)1. of this rule.

(1)(C)2.B. If you are required to conduct monitoring at a frequency that is less than quarterly, you must begin monitoring in the calendar month recommended in the Initial Distribution System Evaluation (IDSE) report prepared under Standard Monitoring or the System Specific studies in 40 CFR part 141 subpart U, incorporated by reference in 10 CSR 60-4.092, or the calendar month identified in the monitoring plan developed under section (3) of this rule no later than twelve (12) months after the compliance date in this table.

(1)(C)3. If you are required to conduct quarterly monitoring, you must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than four (4) quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters). If you are required to conduct monitoring at a frequency that is less than quarterly, you must make compliance calculations beginning with the first compliance sample taken after the compliance date.

(1)(C)4. For the purpose of the schedule in paragraph (1)(C)1. of this rule, the department may determine that the combined distribution system does not include certain consecutive systems based on factors such as receiving water from a wholesale system only on an emergency basis or receiving only a small percentage and small volume of water from a wholesale system. The department may also determine that the combined distribution system does not include certain wholesale systems based on factors such as delivering water to a consecutive system only on an emergency basis or delivering only a small percentage and small volume of water to a consecutive system only on an emergency basis or delivering only a small percentage and small volume of water to a consecutive system.

(1)(D) Monitoring and Compliance.

(1)(D)1. Systems required to monitor quarterly. To comply with MCLs in section <u>10 CSR 60-4.090(1)(D)</u> you must calculate LRAAs for TTHM and HAA5 using monitoring results collected under this rule and determine that each LRAA does not exceed the MCL. If you fail to complete four (4) consecutive quarters of monitoring, you must calculate compliance with the MCL based on the average of the available data from the most recent four (4) quarters. If you take more than one (1) sample per quarter at a monitoring location, you must average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation.

(1)(D)2. Systems required to monitor yearly or less frequently. To determine compliance with the Stage 2 D/DBP MCLs in subsection 10 CSR 60-4.090(1)(D), you must determine that each sample taken is less than the MCL. If any sample exceeds the MCL, you must comply with the requirements of section (6) of this rule. If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.

(1)(E) Violation. You are in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if you fail to monitor.

(2) Routine Monitoring.

(2)(A) Monitoring.

(2)(A)1. If you submitted an IDSE report, you must begin monitoring at the locations and months you have recommended in your IDSE report submitted under the monitoring location recommendations and chart in <u>40 CFR part 141</u> subpart U, which is incorporated by reference in <u>10 CSR 60-4.092</u>, following the schedule in subsection (1)(C) of this rule, unless the department requires other locations or additional locations after its review. If you submitted a 40/30 certification or qualified for a very small system waiver under <u>40 CFR part 141</u> subpart U, which is incorporated by reference in <u>10 CSR 60-4.092</u>, or you are a nontransient noncommunity water system serving less than ten thousand (10,000) population, you must monitor at the location(s) and dates identified in your monitoring plan under <u>10 CSR 60-4.090(3)(A)3</u>, updated as required by section (<u>3</u>) of this rule.

(2)(A)2. You must monitor at no fewer than the number of locations identified in the following table.
Stage 2 D/DBP Routine Monitoring

+	+	+
++ 	1	I
Distribution	1	1
system	1	1
monitoring	1	1
location total	1	1
 Monitoring per monitoring Source water type Frequency1 period2	Population size category	 +
+		
Surface water system or ground water	<500	Per year
under the direct influence of surface	500-3,300	Per
water:	3,301-9,999	Per
quarter 2		
	10,000-49,999	Per
quarter 4	50,000-249,999	Per
quarter 8	250,000-999,999	Per
quarter 12	1,000,000-4,999,999	Per
quarter 16	≥5,000,000	Per
quarter 20	1	I
		l
Ground water:	<500	Per year
2	500-9.999	Per vear
2		
guarter 4	10,000-99,999	Per
	100,000-499,999	Per
quarter 6	≥500.000	Per
quarter 8		
+		+-

1 All systems must monitor during month of highest DBP concentrations.

2 Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for surface water systems or ground water under the direct influence of surface water serving 500-3,300. Systems on annual monitoring and surface water systems or ground water under the direct influence of surface water serving 500-3,300 are required to take

individual TTHM and HAA5 samples (instead of a dual sample set) at the location with the highest TTHM and HAA5 concentrations, respectively. Only one (1) location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location (and month, if monitored annually).

(2)(A)3. If you are an undisinfected system that begins using a disinfectant other than ultraviolet (UV) light after the dates in <u>40 CFR part 141</u> subpart U for complying with the Initial Distribution System Evaluation requirements, you must consult with the department to identify compliance monitoring locations for this rule. You must then develop a monitoring plan under section (<u>3</u>) of this rule that includes those monitoring locations.

(2)(B) Analytical methods. You must use an approved method listed in <u>10 CSR 60-5.010</u> for TTHM and HAA5 analyses. Analyses must be conducted by laboratories that have received certification by Environmental Protection Agency (EPA) or the department as specified in <u>10</u> <u>CSR 60-5.010</u>.

(3) Stage 2 D/DBP Rule Monitoring Plan.

(3)(A) Developing and implementing a monitoring plan.

(3)(A)1. You must develop and implement a monitoring plan to be kept on file for department and public review. The monitoring plan must contain the following elements and be complete no later than the date you conduct your initial monitoring under this rule:

(3)(A)1.A. Monitoring locations;

(3)(A)1.B. Monitoring dates;

(3)(A)1.C. Compliance calculation procedures; and

(3)(A)1.D. Monitoring plans for any other systems in the combined distribution system if the department has reduced monitoring requirements.

(3)(A)2. If you were not required to submit an IDSE report under either Standard Monitoring or System Specific Studies in <u>40 CFR part 141</u> subpart U, and you do not have sufficient Stage 1 D/DBP rule monitoring locations to identify the required number of Stage 2 D/DBP rule compliance monitoring locations indicated in the Monitoring Location Recommendations table in <u>40 CFR part 141</u> subpart U, you must identify additional locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. You must also provide the rationale for identifying the locations as having high levels of TTHM or HAA5. If you have more Stage 1 D/DBP rule monitoring Location Recommendations table in <u>40 CFR part 141</u> subpart U, you must identify stage 2 D/DBP rule compliance monitoring, detailed in the Monitoring Location Recommendations table in <u>40 CFR part 141</u> subpart U, you will use for Stage 2 D/DBP rule compliance monitoring by alternating selection of locations representing high TTHM levels and high TTHM levels and high HAA5. If you have more Stage 1 D/DBP rule monitoring locations than required for Stage 2 D/DBP rule compliance monitoring, detailed in the Monitoring Location Recommendations table in <u>40 CFR part 141</u> subpart U, you must identify which locations representing high TTHM levels and high HAA5 levels until the required number of Stage 2 D/DBP rule compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of Stage 2 D/DBP rule compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of Stage 2 D/DBP rule compliance monitoring locations have been identified.

(3)(B) If you are a surface water system or ground water under the direct influence of surface water system serving greater than three thousand three hundred (>3,300) people, you must submit a copy of your monitoring plan to the department prior to the date you conduct your initial monitoring under this rule, unless your IDSE report submitted under 40 CFR part 141 subpart U contains all the information required by section (3) of this rule.

(3)(C) You may revise your monitoring plan to reflect changes in treatment, distribution system operations and layout (including new service areas), or other factors that may affect TTHM or HAA5 formation, or for department-approved reasons, after consultation with the department regarding the need for changes and the appropriateness of changes. If you change monitoring locations, you must replace existing compliance monitoring locations with the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels. The department may also require modifications in your monitoring plan. If you are a surface water system or ground water under the direct influence of surface water system serving greater than three thousand three hundred (>3,300) people, you must submit a copy of your modified monitoring plan to the department prior to the date you are required to comply with the revised monitoring plan.

(4) Reduced Monitoring.

(4)(A) You may reduce monitoring to the level specified in this subsection (4)(A) any time the LRAA is ≤ 0.040 mg/L for TTHM and ≤ 0.030 mg/L for HAA5 at all monitoring locations. You may only use data collected under the provisions of this rule or the Stage 1 D/DBP rule to qualify for reduced monitoring. In addition, the source water annual average total organic carbon (TOC) level, before any treatment, must be ≤ 4.0 mg/L at each treatment plant treating surface water or ground water under the direct influence of surface water, based on monitoring conducted under either 10 CSR 60-4.090(3)(B)1.C. or 10 CSR 60-4.090(3)(D).

Stage 2 D/DBP Reduced Monitoring

[Table not included in this text]

(4)(B) You may remain on reduced monitoring as long as the TTHM LRAA ≤ 0.040 mg/L and the HAA5 LRAA ≤ 0.030 mg/L at each monitoring location (for systems with quarterly reduced monitoring) or each TTHM sample ≤ 0.060 mg/L and each HAA5 sample ≤ 0.045 mg/L (for systems with annual or less frequent monitoring). In addition, the source water annual average TOC level, before any treatment, must be ≤ 4.0 mg/L at each treatment plant treating surface water or ground water under the direct influence of surface water, based on monitoring conducted under either 10 CSR 60-4.090(3)(B)1.C. or 10 CSR 60-4.090(3)(D).

(4)(C) If the LRAA based on quarterly monitoring at any monitoring location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 or if the annual (or less frequent) sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5, or if the source water annual average TOC level, before any treatment, >4.0 mg/L at any treatment plant treating surface water or ground water under the direct influence of surface water, you must resume

routine monitoring under section 10 CSR 60-4.094(2) or begin increased monitoring if section 10 CSR 60-4.094(6) applies.

(4)(D) The department may return your system to routine monitoring at the department's discretion.

(5) Additional Requirements for Consecutive Systems. If you are a consecutive system that does not add a disinfectant but delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light, you must comply with analytical and monitoring requirements for chlorine and chloramines in 10 CSR 60-5.010 and 10 CSR 60-4.055(4)(E) and the compliance requirements in 10 CSR 60-4.090(4)(C)1. beginning April 1, 2009, unless required earlier by the department, and report monitoring results under 10 CSR 60-7.010(6)(C).

(6) Conditions Requiring Increased Monitoring.

(6)(A) If you are required to monitor at a particular location annually or less frequently than annually under section (2) or (4) of this rule, you must increase monitoring to dual sample sets once per quarter (taken every ninety (90) days) at all locations if a TTHM sample is >0.080 mg/L or an HAA5 sample is >0.060 mg/L at any location.

(6)(B) You are in violation of the MCL when the LRAA exceeds the Stage 2 D/DBP rule MCLs in subsection <u>10 CSR 60-4.090(1)(D)</u>, calculated based on four (4) consecutive quarters of monitoring (or the LRAA calculated based on fewer than four (4) quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters). You are in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if you fail to monitor.

(6)(C) You may return to routine monitoring once you have conducted increased monitoring for at least four (4) consecutive quarters and the LRAA for every monitoring location is ≤ 0.060 mg/L for TTHM and ≤ 0.045 mg/L for HAA5.

(7) Operational Evaluation Levels.

(7)(A) You have exceeded the operational evaluation level at any monitoring location where the sum of the two (2) previous quarters of TTHM results plus twice the current quarter's TTHM result, divided by four (4) to determine an average, exceeds 0.080 mg/L, or where the sum of the two (2) previous quarters of HAA5 results plus twice the current quarter's HAA5 result, divided by four (4) to determine an average, exceeds 0.060 mg/L.

(7)(B) If Operational Evaluation Levels are Exceeded.

(7)(B)1. If you exceed the operational evaluation level, you must conduct an operational evaluation and submit a written report of the evaluation to the department no later than ninety (90) days after being notified of the analytical result that causes you to exceed the operational evaluation level. The written report must be made available to the public upon request.

(7)(B)2. Your operational evaluation must include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedences.

(7)(B)2.A. You may request and the department may allow you to limit the scope of your evaluation if you are able to identify the cause of the operational evaluation level exceedance.

(7)(B)2.B. Your request to limit the scope of the evaluation does not extend the schedule in paragraph (7)(B)1. of this rule for submitting the written report. The department must approve this limited scope of evaluation in writing, and you must keep that approval with the completed report.

(8) Requirements for Remaining on Reduced TTHM and HAA5 Monitoring Based on Stage 1 D/DBP Rule Results. You may remain on reduced monitoring after the dates identified in subsection (1)(C) of this rule for compliance with this rule only if you qualify for a 40/30 certification under 40 CFR part 141 subpart U or have received a very small system waiver under 40 CFR part 141 subpart U, plus you meet the reduced monitoring criteria in subsection (4)(A) of this rule, and you do not change or add monitoring locations from those used for compliance monitoring under the Stage 1 D/DBP rule. If your monitoring locations under this rule differ from your monitoring locations under the Stage 1 D/DBP rule, you may not remain on reduced monitoring after the dates identified in subsection (1)(C) for compliance with this rule.

(9) Requirements for Remaining on Increased TTHM and HAA5 Monitoring Based on Stage 1 D/DBP Rule Results. If you were on increased monitoring under 10 CSR 60-4.090(3)(B)1, you must remain on increased monitoring until you qualify for a return to routine monitoring under subsection (6)(C) of this rule. You must conduct increased monitoring under section (3) of this rule beginning at the date identified in subsection (1)(C) of this rule for compliance with this rule and remain on increased monitoring until you qualify for a return to routine monitoring under subsection (6)(C) of this rule.

(10) Stage 2 D/DBP Reporting and Record-Keeping Requirements.

(10)(A) Reporting requirements are found in <u>10 CSR 60-7.010</u>, Reporting Requirements.

(10)(B) Record-keeping requirements are found in 10 CSR 60-9.010, Requirements for Maintaining Public Water System Records.

10 CSR 60-4.100 Maximum Volatile Organic Chemical Contaminant Levels And Monitoring Requirements

PURPOSE: This rule establishes maximum contaminant levels and monitoring requirements for volatile organic chemicals.

(1) This rule applies to community and nontransient noncommunity public water systems.

(2) The following are the maximum contaminant levels (MCLs) for volatile organic chemicals (VOCs).

	Maximum Contaminant Level, Milligrams
Contaminant	Per Liter
(A) Eight (8) original VOCs	
1. Benzene	0.005
2. Carbon tetrachloride	0.005
3. 1,2-Dichloroethane	0.005
4. 1,1-Dichloroethylene	0.007
5. para-Dichlorobenzene	0.075
6. 1,1,1-Trichloroethane	0.2
7. Trichloroethylene	0.005
8. Vinyl chloride	0.002
(B) Thirteen (13) VOCs	
 cis-1,2-Dichloroethylene 	0.07
2. Dichloromethane	0.005
3. 1,2-Dichloropropane	0.005
4. Ethylbenzene	0.7
5. Monochlorobenzene	0.1
6. o-Dichlorobenzene	0.6
7. Styrene	0.1
8. Tetrachloroethylene	0.005
9. Toluene	1
10. 1,2,4-Trichlorobenzene	0.07
11. 1,1,2-Trichloroethane	0.005
12. trans-1,2-Dichloroethylene	0.1
13. Xylenes (total)	10

(3) For the purpose of determining compliance with MCLs, a supplier of water must collect samples of the product water for analyses as follows:

(3)(A) During the initial three (3)-year compliance, all community and nontransient noncommunity water systems must collect an initial round of four (4) consecutive quarterly samples for each of the contaminants listed in section (2) unless a waiver has been granted by the department. The department will designate the year in which each system samples within this compliance period;

(3)(B) All public water systems shall sample at points in the distribution system representative of each water source or at each entry point to the distribution system. Each sample must be taken at the same sampling point, unless conditions make another sampling point more representative of each source or treatment plant. The sampling point will be after the application of treatment, if any;

(3)(C) If the system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions;

(3)(D) The department may require more frequent monitoring than specified in subsection (3)(A) of this rule and may require confirmation samples for positive and negative results at its discretion; and

(3)(E) If one (1) sampling point is in violation of an MCL, the system is in violation of the MCL.

(3)(E)1. For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

(3)(E)2. Systems monitoring annually or less frequently whose sample result exceeds the MCL must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one (1) year of quarterly sampling.

(3)(E)3. If any sample result will cause the running annual average to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately.

(3)(E)4. If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected.

(3)(E)5. If a sample result is less than the detection limit, zero will be used to calculate the annual average.

(4) The department may allow the use of monitoring data collected after January 1, 1988, to satisfy the initial base sampling requirements. If the initial monitoring for all contaminants has been completed by December 31, 1992, in accordance with the requirements of subsections (3)(B) and (C) of this rule, and the system did not detect any contaminants listed in section (2), then the system shall sample annually beginning in the initial compliance period.

(5) If contaminants are not detected during the first three (3)-year compliance period, systems may decrease their sampling frequency beginning in the next year.

(5)(A) Groundwater systems must sample annually. After three (3) years of annual sampling and no previous detection, groundwater systems may reduce their sampling frequency to one (1) sample per compliance period.

(5)(B) Surface water systems must sample annually after the initial sampling period if there are no contaminants detected in the initial sampling.

(6) If contaminants are detected in any sample, then systems must sample quarterly beginning in the next quarter at each sampling point which resulted in a detection.

(6)(A) Groundwater systems must sample a minimum of two (2) quarters and surface water systems must sample a minimum of four (4) quarters to establish a baseline.

(6)(B) If the MCL is exceeded as described in subsections $(\underline{6})(\underline{E})$ or (F) of this rule, then systems must sample quarterly beginning in the next quarter. Systems must sample a minimum of four (4) quarters to establish a baseline.

(6)(C) If the baseline indicates a system's analytical results are reliably and consistently below the MCL, the department may reduce the system's sampling frequency to annually. (Annual sampling must be conducted during the quarter which previously yielded the highest analytical result.)

(6)(D) Systems which have three (3) consecutive annual samples with no detection of a contaminant may apply to the department for a waiver.

(6)(E) If a system conducts sampling more frequently than annually, the system will be in violation when the running annual average at any sampling point exceeds the MCL.

(6)(F) If a system conducts sampling annually or on a less frequent basis, the system will be in violation when one (1) sample (or the average of the initial and confirmation samples) at any sampling point exceeds the MCL.

(7) A public water system may apply to the department for susceptibility waivers from required sampling. Systems are eligible for reduced monitoring in the initial three (3)-year compliance period. Waivers are effective for two (2) compliance periods. The waiver must be renewed in subsequent compliance periods, or the system must conduct sampling as required by section (3) of this rule. A public water system may apply to the department for susceptibility waivers for reduced monitoring contingent on the conduct of a thorough vulnerability assessment as required by 10 CSR 60-6.060(3).

(7)(A) As a condition of the susceptibility waiver, a groundwater system must take one (1) sample at each sampling point during the time the waiver is effective (that is one (1) sample during two (2) compliance periods or six (6) years) and update its vulnerability assessment by the end of the first compliance period. The department must confirm that the system is not vulnerable.

(7)(B) Surface water systems must sample at a frequency determined by the department. A vulnerability assessment according to 10 CSR 60-6.060(3) must be required in subsequent compliance periods in order for the system to return to its nonvulnerable status.

(7)(C) For the purposes of this section, detection is defined as greater than 0.0005 mg/l.

(8) As determined by the department, confirmation samples may be required for either positive or negative results. If a confirmation sample is used, the compliance determination is based on the average of the results of both the confirmation sample and the initial sample.

(9) Any public water system violating MCLs or monitoring and reporting requirements, for any of the contaminants listed in section (2) of this rule, must notify the department within seven (7) days and give public notice as required by 10 CSR 60-8.010.

(10) All new systems or systems that use a new source of water that begin operation after January 22, 2004 must demonstrate compliance with the MCL or treatment technique within a period of time specified by the department. The system must also comply with the initial sampling frequencies specified by the department to ensure a system can demonstrate compliance with the MCL or treatment technique. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this rule.

10 CSR 60-4.110 Special Monitoring For Unregulated Chemicals

PURPOSE: This rule establishes monitoring requirements for organic chemicals, volatile organic chemicals, and an inorganic chemical which are unregulated in that they do not have maximum contaminant levels.

(1) This rule applies to community and nontransient noncommunity public water systems.

(2) Unless a waiver has been granted by the department, all public water systems shall conduct a one (1) time round of sampling. All public water systems shall monitor for the following contaminants:

(2)(A) Organics--

(2)(A)1. Aldicarb;

(2)(A)2. Aldicarb sulfoxide;

(2)(A)3. Aldicarb sulfone;

(2)(A)4. Aldrin;

(2)(A)5. Butachlor;

(2)(A)6. Carbaryl;

(2)(A)7. Dicamba;

(2)(A)8. Dieldrin;

(2)(A)9. 3-Hydroxycarbofuran;

(2)(A)10. Methomyl;

(2)(A)11. Metolachlor;

- (2)(A)12. Metribuzin; and
- (2)(A)13. Propachlor;
- (2)(B) Inorganics--
- (2)(B)1. Sulfate.
- (3) All public water systems shall monitor at least once for the following contaminants:
- (3)(A) All public water systems shall monitor for the following contaminants:
- (3)(A)1. Bromobenzene;
- (3)(A)2. Bromodichloromethane;
- (3)(A)3. Bromoform;
- (3)(A)4. Bromomethane;
- (3)(A)5. Chlorodibromomethane;
- (3)(A)6. Chloroethane;
- (3)(A)7. Chloroform;
- (3)(A)8. Chloromethane;
- (3)(A)9. o-Chlorotoluene;
- (3)(A)10. p-Chlorotoluene;
- (**3**)(**A**)11. Dibromomethane;
- (**3**)(**A**)12. m-Dichlorobenzene;
- (3)(A)13. 1,1-Dichloroethane;
- (3)(A)14. 1,1-Dichloropropene;
- (3)(A)15. 1,3-Dichloropropane;
- (3)(A)16. 1,3-Dichloropropene;
- (3)(A)17. 2,2-Dichloropropane;

(**3**)(**A**)18. 1,1,1,2-Tetrachloroethane;

(3)(A)19. 1,1,2,2-Tetrachloroethane; and

(3)(A)20. 1,2,3-Trichloropropane; and

(3)(B) The department will determine which water systems shall monitor for the following chemicals:

(3)(B)1. Bromochloromethane;

(3)(B)2. n-Butylbenzene;

(3)(B)3. Dichlorodifluoromethane;

(3)(B)4. Fluorotrichloromethane;

(3)(B)5. Hexachlorobutadiene;

(3)(B)6. Isopropylbenzene;

(3)(B)7. p-Isopropyltoluene;

(3)(B)8. Naphthalene;

(3)(B)9. n-Propylbenzene;

(3)(B)10. sec-Butylbenzene;

(3)(B)11. tert-Butylbenzene;

(**3**)(**B**)12. 1,2,3-Trichlorobenzene;

(3)(B)13. 1,2,4-Trimethylbenzene; and

(3)(B)14. 1,3,5-Trimethylbenzene.

(4) All public water systems shall sample at points in the distribution system representative of each water source or at entry points to the distribution system. The sampling point will be after the application of treatment. The minimum number of samples is four consecutive quarterly samples per water source for the organic chemicals listed under subsection (2)(A) of this rule, and one (1) sample per water source for the inorganic chemical listed under subsection (2)(B) of this rule. Sampling must be completed no later than the end of the initial three (3)-year compliance period and results reported to the department. Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(5) If the system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions.

(6) A public water system may apply to the department for a waiver from the required sampling in section (3) for either organics or inorganics. All public water systems must conduct a one (1) time round of sampling.

(6)(A) A public water system may apply to the department for a use waiver for reduced monitoring from required organics sampling as required by 10 CSR 60-6.060(2) if previous use of the chemical can be ruled out or a public water system may apply to the department for a susceptibility waiver for reduced monitoring from required organics sampling contingent on the conduct of a thorough vulnerability assessment as required by 10 CSR 60-6.060(3).

(6)(B) A public water system may apply to the department for susceptibility waivers for reduced monitoring from required inorganic sampling contingent on the conduct of a thorough vulnerability assessment as required by 10 CSR 60-6.060(3). Only data collected after January 1, 1990, will be considered in making this assessment.

(6)(C) A public water system serving fewer than one hundred fifty (150) service connections shall be treated as complying with the monitoring requirement if the owner or operator sends a letter to the department specifying that their system is available for sampling. This letter must be sent to the department no later than January 1, 1994.

(7) As determined by the department, confirmation samples may be required for either positive or negative results.

10 CSR 60-5 Chapter 5--Laboratory And Analytical Requirements

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<u>10 CSR 60-5.010</u> Acceptable And Alternate Procedures For Analyses

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10 CSR 60-5.010 Acceptable And Alternate Procedures For Analyses

PURPOSE: This rule lists manuals containing acceptable analysis procedures for determination of contaminant levels.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. This material as incorporated by reference in this rule shall be maintained by the agency at its headquarters and shall be made available to the public for inspection and copying at no more than the actual cost of reproduction. This note applies only to the reference material. The entire text of the rule is printed here. (1) Inorganic and Secondary Contaminants. Unless substitute methods are approved by the U.S. Environmental Protection Agency (EPA), analysis shall be conducted in accordance with the inorganic and secondary contaminant analytical methods in paragraphs 40 CFR 141.23(k)(l) and 40 CFR 143.4(b) of the July 1, 2011, *Code of Federal Regulations*, which are incorporated by reference in this rule. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(2) Organic Contaminants. Unless substitute methods are approved by the EPA, analysis shall be conducted in accordance with the organic contaminant analytical methods in paragraph 40 CFR 141.24(e) of the July 1, 2011, *Code of Federal Regulations*, which is incorporated by reference in this rule. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(3) Microbiological Contaminants and Turbidity. Unless substitute methods are approved by the EPA, analysis shall be conducted in accordance with the microbiological contaminant and turbidity analytical methods in 40 CFR 141.21(f), 40 CFR 141.74(a)(1), and 40 CFR 141.704(a) of the July 1, 2011, *Code of Federal Regulations*, which are incorporated by reference. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(4) Radiological Contaminants. Unless substitute methods are approved by the EPA, analysis shall be conducted in accordance with the radiological contaminant analytical methods in paragraphs 40 CFR 141.25(a) and (b) of the July 1, 2011, *Code of Federal Regulations*, which are incorporated by reference. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(5) Disinfection By-Products, Residual Disinfectant Concentrations, and Disinfection By-Product Precursors. Unless substitute methods are approved by the EPA, analysis shall be conducted in accordance with the disinfection by-product, residual disinfectant concentration, and disinfection by-product precursor analytical methods in 40 CFR 141.74(a)(2) and 40 CFR 141.131 of the July 1, 2011, *Code of Federal Regulations*, which are incorporated by reference. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(6) Sample collection for the contaminants referenced in this rule must be conducted using the sample preservation, container, and maximum holding time procedures specified in the following procedures, which are incorporated by reference, or in accordance with procedures contained in

the appropriate analytical method. The incorporation by reference does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(6)(A) Inorganic contaminant sample collection procedures in 40 CFR 141.23(k)(2) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference.

(7) The department may reduce the total number of samples a system must analyze by allowing the use of compositing. Compositing shall be conducted according to the following procedures, which are incorporated by reference. The incorporation by reference does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(7)(A) Sample compositing procedures for inorganic contaminants in 40 CFR 141.23(a)(4) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference.

(7)(B) Sample compositing procedures for volatile organic contaminants in 40 CFR 141.24(f)(14) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference.

(7)(C) Sample compositing procedures for synthetic organic contaminants in 40 CFR 141.24(h)(10) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference.

(7)(D) Sample compositing procedures for radiological contaminants in 40 CFR 141.26(a)(4) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference.

(7)(E) Sample compositing procedures for lead and copper in 40 CFR 141.88(a)(1)(iv) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference.

(8) Detection Limits.

(8)(A) Detection limits for inorganic contaminants in 40 CFR 141.23(a)(4)(i) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(8)(B) Practical Quantitation Levels (PQL) for lead and copper in 40 CFR 141.89(a)(1)(ii)(A) and (B) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(8)(C) Detection limit for volatile organic contaminants in 40 CFR 141.24(f)(7) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference. This does not include later

amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(8)(D) Detection limits for synthetic organic contaminants in 40 CFR 141.24(h)(13)(ii) and 141.24(h)(18) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(8)(E) Detection limits for radiological contaminants in 40 CFR 141.25(c) of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(8)(F) Detection limits for disinfection by-products in 40 CFR 141.64 of the July 1, 2011, *Code of Federal Regulations* are incorporated by reference. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

(9) Analytical Methods for Source Water Monitoring. Unless substitute methods are approved by the department, analysis shall be conducted in accordance with the analytical methods in 40 CFR 141.402(c) of the July 1, 2011, *Code of Federal Regulations*, which are incorporated by reference. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

10 CSR 60-5.020 Laboratory Certification

PURPOSE: This rule establishes that required analyses must be done by laboratories certified by the department.

(1) For the purpose of determining compliance with this chapter, analytical results will be acceptable only if the samples have been analyzed by a laboratory certified by the department.

(2) To receive approval to conduct analyses for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium the laboratory must--

(2)(A) Analyze performance evaluation samples which include those substances provided by the Environmental Protection Agency (EPA) Environmental Monitoring and Support Laboratory or equivalent samples provided by the department; and

(2)(B) Achieve quantitative results on the analyses that are within the following acceptance limits:

Acceptance Limit
±30% at ≥0.006 mg/l
2 standard deviations
based on study statistics
±15% at ≥0.15 mg/l
±15% at ≥0.001 mg/l
±20% at ≥0.002 mg/l
±15% at ≥0.01 mg/l
±10% at ≥0.50 mg/l
±10% at ≥1 to 10 mg/l
±30% at ≥0.005 mg/l
±30% at ≥0.0005 mg/l
±15% at ≥0.01 mg/l
±10% at ≥0.4 mg/l
±15% at ≥0.4 mg/l
±20% at ≥0.1 mg/l
±30% at ≧0.002 mg/l

(3) To receive certification to conduct analyses for the contaminants in 10 CSR 60-4.100(2)(A)2.-7. and (B)1.-13., the laboratory must--

(3)(A) Analyze performance evaluation samples which include these substances provided by EPA Environmental Monitoring and Support Laboratory or equivalent samples provided by the department;

(3)(B) Achieve the quantitative acceptance limits subsections (3)(C) and (D) of this rule for at least eighty percent (80%) of the regulated organic chemicals listed in 10 CSR 60-4.100(2)(A)2.-7. and (B)1.-13.;

(3)(C) Achieve the quantitative results on the analyses performed under subsection (3)(A) of this rule that are within plus or minus twenty percent (±20%) of the actual amount of the substances in the performance evaluation sample when the actual amount is greater than or equal to 0.010 mg/l;

(3)(D) Achieve quantitative results on the analyses performed under subsection (3)(A) of this rule that are within plus or minus forty percent (±40%) of the actual amount of the substances in the performance evaluation sample when the actual amount is less than 0.010 mg/l; and

(3)(E) Achieve a method detection limit of 0.0005 mg/l.

(4) To receive certification for vinyl chloride, the laboratory must--

(4)(A) Analyze performance evaluation samples provided by EPA Environmental Monitoring and Support Laboratory or equivalent samples provided by the department.

(4)(B) Achieve quantitative results on the analyses performed under subsection (4)(A) of this rule that are within plus or minus forty percent (±40%) of the actual amount of vinyl chloride in the performance evaluation sample;

(4)(C) Achieve a method detection limit of 0.0005 mg/l; and

(4)(D) Obtain certification for the contaminants listed in 10 CSR 60-4.100(2)(A)2.-7. and (B)1.-13.

(5) To receive certification to conduct analyses for the contaminants in 10 CSR 60-4.040 (1), the laboratory must--

(5)(A) Analyze performance evaluation samples which include those substances provided by EPA Environmental Monitoring and Support Laboratory or equivalent samples provided by the department.

(5)(B) Achieve quantitative results on the analyses that are within the following acceptance limits:

Contaminant	Acceptance Limit		
		pero(cent)
2,3,7,8-TCDD (Dioxin)	2	standard	
2,4-D		±5	50
2,4,5-TP		±5	50
Alachlor		±4	15
Aldicarb	2	standard	deviations
Aldicarb sulfoxide	2	standard	deviations
Aldicarb sulfone	2	standard	deviations
Atrazine		±4	15
Benzo(a)pyrene	2	standard	deviations
Carbofuran	±45		
Chlordane		±4	15
Dalapon	2	standard	deviations
Dibromochloropropane		±4	10
Di(2-ethylhexyl)-adipate	2	standard	deviations
Di(2-ethylhexyl)-phthalate	2	standard	deviations
Dinoseb	2	standard	deviations
Diquat	2	standard	deviations
Endothall	2	standard	deviations
Endrin	±45		
Ethylene dibromide		±4	10
Glyphosate	2	standard	deviations
Heptachlor		±4	15
Heptachlor Epoxide		±4	15
Hexachlorobenzene	2	standard	deviations
Hexachlorocyclopentadiene	2	standard	deviations
Lindane		±4	15
Methoxychlor		±4	15
Oxamyl	2	standard	deviations
Polychlorinated biphenyls			
(PCBs)(as Decachlorobiphenyl)		0	-200

Picloram	2	standard	deviations
Simazine	2	standard	deviations
Toxaphene		±4	ł5
Pentachlorophenol		±5	50

(6) To receive approval to conduct analyses for copper and lead the laboratory must--

(6)(A) Analyze performance evaluation samples which include those substances provided by EPA environmental monitoring and support laboratory or equivalent samples provided by the department.

(6)(B) Achieve quantitative acceptance limits for copper plus or minus ten percent ($\pm 10\%$) of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to 0.050 mg/l; lead plus or minus thirty percent ($\pm 30\%$) of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to 0.005 mg/l; and

(6)(C) Achieve a method detection limit of 0.001 mg/l.

(7) Analysis for disinfection byproducts must be conducted by laboratories that have received certification by the department except that a party approved by the department must measure daily chlorite samples at the entrance to the distribution system. To receive certification to conduct analyses for the TTHM, HAA5, bromate and chlorite, the laboratory must carry out annual analyses of performance evaluation (PE) samples ap-proved by the department. In these analyses of PE samples, the laboratory must achieve quantitative results within the acceptance limit on a minimum of eighty percent (80%) of the analytes included in each PE sample. The acceptance limit is defined as the ninety-five percent (95%) confidence interval calculated around the mean of the PE study data between a maximum and minimum acceptance limit of plus or minus fifty percent ($\pm 50\%$) and plus or minus fifteen percent ($\pm 15\%$) of the study mean.

(8) The department has the authority to allow the use of previously collected monitoring data for purposes of monitoring, if the data were collected and analyzed in accordance with the requirements of this rule.

(9) All lead levels measured between the Practical Quantification Level (PQL) and Method Detection Limit (MDL) must be either reported as measured or they can be reported as one-half (1/2) the PQL (0.0025 mg/l). All levels below the lead MDL must be reported as zero (0).

(10) All copper levels measured between the PQL and the MDL must be either reported as measured or they can be reported as one-half (1/2) the PQL (0.015 mg/l). All levels below the copper MDL must be reported as zero (0).

(11) Operational monitoring measurements required by 10 CSR 60-4.080(3) shall be performed on-site by persons acceptable to the department.

(12) The department will consider acceptance of analytical results from out-of-state laboratories upon written request.

10 CSR 60-6 Chapter 6--Variances, Exemptions And Abatement Orders

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10 CSR 60-6.010 Procedures And Requirements For Variances

PURPOSE: This rule sets forth procedures and requirements for requesting and granting variances for any size of public water system.

(1) Conditions of Variance. The department may grant one (1) or more variances to any public water system from any maximum contaminant level (MCL) requirement, except for those MCL violations that present an acute, short-term risk to public health, and any specified treatment technique.

(1)(A) A variance from an MCL may be granted to a public water system upon a finding that, due to characteristics of raw water sources which are reasonably available, the system cannot meet the MCL requirement--

(1)(A)1. On the condition that the system installs the best available technology, treatment techniques or other means, which the department, taking cost into consideration, finds generally available and based upon an evaluation satisfactory to the department that indicates that alternative sources of water are not reasonably available to the system; and

(1)(A)2. The granting of a variance will not result in an unreasonable risk to persons served by the system.

(1)(B) A variance from a specified treatment technique may be granted upon a finding that a public water system applying for this variance has demonstrated that the treatment technique is not necessary to protect persons served by the system because of the nature of the raw water source. A variance granted under this subsection (1)(B) shall be conditioned on such monitoring and other requirements as the department may prescribe.

(2) Variance Request. A supplier of water seeking a variance shall submit a written request to the department. Suppliers of water may submit a joint request for a variance when they seek similar variances under similar circumstances. Any written request for a variance shall include the following information:

(2)(A) The nature and duration of the variance requested;

(2)(B) Relevant analytical results of water quality sampling of the system including sampling of raw water relevant to the variance request;

(2)(C) Full discussion with supporting data regarding the best available treatment technology and techniques including evidence of the inability of the system to comply;

(2)(D) Economic and legal factors relevant to ability to comply;

(2)(E) A proposed compliance schedule, including the date each step toward compliance will be achieved;

(2)(F) The date by which the connection with an alternative water source or an improvement of an existing raw water source will be initiated;

(2)(G) The date by which an arrangement for an alternative water source or improvement of an existing raw water source will be completed;

(2)(H) The date by which final compliance is to be achieved;

(2)(I) A plan for the provision of safe drinking water should there be an excessive rise in the contaminant level for which the variance is requested;

(2)(J) A plan for interim control measures during the effective period of variance;

(2)(K) Any request made under the provisions of this rule shall include, as a condition of the variance, a statement that the system will perform monitoring and other reasonable requirements prescribed by the department;

(2)(L) Any other information the applicant believes to be pertinent; and

(2)(M) Other information as the department may require.

(3) Consideration of a Variance Request.

(3)(A) In considering whether the public water system is unable to comply with a contaminant level requirement because of the nature of the raw water source, the department shall review factors it considers relevant, including the following:

(3)(A)1. The availability, effectiveness and reliability of treatment methods for the contaminant for which the variance is requested;

(3)(A)2. Cost and other economic considerations in implementing treatment, improving the quality of the source of water or using an alternate source;

(3)(A)3. Characteristics of the raw water source(s);

(3)(A)4. Availability of an alternative water source; and

(3)(A)5. Risk to health.

(3)(B) In considering whether the public water system should be granted a variance to a required treatment technique because the treatment is unnecessary to protect the public, the department shall consider the following factors:

(3)(B)1. Quality of the water source including water quality data and pertinent sources of pollution; and

(3)(B)2. Susceptibility of the source to contamination and the source protection measures employed by the public water system.

(4) Disposition of a Request for Variance.

(4)(A) If the department determines that a request for a variance is inadequate or incomplete, it may deny the request.

(4)(B) If the department proposes to grant a variance request--

(4)(B)1. The department shall provide notice and opportunity for public hearing on the proposed variance as specified in 10 CSR 60-6.040. The notice and hearing may cover more than one proposed variance;

(4)(B)2. The department shall notify the applicant of its decision in writing. The notice shall identify the variance, the facility covered and shall specify, as appropriate, the period of time for which the variance will be effective;

(4)(B)3. For a variance from an MCL, the notice also shall provide that the variance will be terminated when the system comes into compliance with the applicable rule and may be terminated upon a finding by the department that the system has failed to comply with any requirements of a final schedule issued pursuant to 10 CSR 60-6.030; and

(4)(B)4. For a variance from a specified treatment technique, the notice shall provide for termination of the variance at any time based upon a finding that--

(4)(B)4.A. Due to the nature of a raw water source, the specified treatment technique required by the variance is necessary to protect persons; or

(4)(B)4.B. The public water system has failed to comply with monitoring and other requirements prescribed by the department as a condition to the granting of the variance.

10 CSR 60-6.020 Procedures And Requirements For Exemptions

PURPOSE: This rule establishes requirements for requesting exemptions to maximum contaminant levels and treatment techniques.

(1) Conditions of Exemption. The department may exempt a public water system from any maximum contaminant level (MCL) requirement, except for those MCL violations that present an acute, short-term risk to public health, or any treatment technique requirement, or both, upon a finding that-

(1)(A) Due to compelling factors (which may include economic factors, including qualification of the public water system as a system serving a disadvantaged community), the public water system is unable to comply with the contaminant level or treatment technique requirement or to implement measures to develop an alternative source of water supply;

(1)(B) The public water system was in operation on the effective date of the contaminant level or treatment technique requirement, or for a public water system that was not in operation by that date, no reasonable alternative source of drinking water is available to the system;

(1)(C) The granting of the exemption will not result in an unreasonable risk to the health of persons served by the system; and

(1)(D) Management or restructuring changes (or both) cannot reasonably be made that will result in compliance with sections 640.100-640.140, RSMo or rules promulgated thereunder, or if compliance cannot be achieved, improve the quality of the drinking water.

(2) Exemption Request. A supplier of water seeking an exemption shall submit a written request to the department. Suppliers of water may submit a joint request when they seek similar exemptions under similar circumstances. Any written request for an exemption shall include the following information:

(2)(A) The nature and duration of exemption requested;

(2)(B) Relevant analytical results of water quality sampling of the system;

(2)(C) Explanation of the compelling factors, such as time or economic factors or lack of an alternative source of water, which prevent the system from achieving compliance;

(2)(D) Consideration of management and restructuring changes, such as-

(2)(D)1. Rate increases, accounting changes, operator certification, and contractual agreements for joint operation with one (1) or more public water systems;

(2)(D)2. Activities to acquire and maintain technical, financial, and managerial capacity; and

(2)(D)3. Ownership changes, physical consolidation with another public water system, or other feasible and appropriate means of consolidation which would result in compliance;

(2)(E) Plans to seek state or federal financial assistance within the period of the exemption to implement management and restructuring changes, and capital improvements as necessary;

(2)(F) A proposed compliance schedule including the date when each step toward compliance will be achieved;

(2)(G) Any other information the applicant believes to be pertinent; and

(2)(H) Other information the department may require.

(3) Consideration of an Exemption Request. In considering whether the public water system is unable to comply due to compelling factors, the department shall review the factors it determines relevant including the following:

(3)(A) Construction, installation or modification of treatment equipment or systems;

(3)(B) The time needed to put into operation a new treatment facility replacing an existing system which is not in compliance;

(**3**)(C) Economic feasibility of compliance;

(3)(D) Feasibility of management and restructuring changes, and the availability of state or federal financial assistance within the period of the exemption to implement these changes, including:

(3)(D)1. Rate increases, accounting changes, operator certification, and contractual agreements for joint operation with one (1) or more public water systems;

(3)(D)2. Activities to acquire and maintain technical, financial, and managerial capacity; and

(3)(D)3. Ownership changes, physical consolidation with another public water system, or other feasible and appropriate means of consolidation which would result in compliance; and

(3)(E) Availability of an alternative source of water, including the feasibility of partnerships with neighboring public water systems, as identified by the public water system or by the department consistent with the Capacity Development Strategy.

(4) Disposition of Exemption Request.

(4)(A) If the department proposes to grant an exemption request submitted pursuant to sections (1)-(3) of this rule, it shall notify the applicant of its decision in writing. The notice shall identify the exemption, the facility covered and shall specify, as appropriate, the termination date of the exemption.

(4)(B) The notice also shall provide that the exemption will be terminated when the system comes into compliance with the applicable regulation and may be terminated upon a finding by the department that the system has failed to comply with any requirements of a final schedule issued pursuant to 10 CSR 60-6.030.

(4)(C) If the department determines that a request for an exemption is inadequate or incomplete, it may deny the request.

(4)(D) No exemption shall be granted unless the public water system establishes that it is taking all practicable steps to meet the standard and-

(4)(D)1. The system cannot meet the standard without capital improvements which cannot be completed prior to two (2) years after the effective date of the rule;

(4)(D)2. In the case of a system which needs financial assistance for the necessary improvements, the system has entered into an agreement to obtain such financial assistance or assistance pursuant to 10 CSR 60-13, or any other federal or state program reasonably likely to be available within the period of the exemption; or

(4)(D)3. The system has entered into an enforceable agreement to become a part of a regional public water system.

10 CSR 60-6.030 Schedules For Variances And Exemptions

PURPOSE: This rule establishes schedules for compliance with conditions of general variances granted under <u>10 CSR 60-6.010</u> to any size public water system and exemptions granted under <u>10 CSR 60-6.020</u>.

(1) Schedules for variances granted under 10 CSR 60-6.010.

(1)(A) Compliance and Implementation. The department shall provide a schedule for--

(1)(A)1. Compliance (including increments of progress) by the public water system with each contaminant level requirement covered by the variance; and

(1)(A)2. Implementation by the public water system of the control measures the department may require for each contaminant covered by the variance.

(1)(B) Schedule for Compliance.

(1)(B)1. A proposed schedule for compliance shall contain the conditions as the department may prescribe and shall specify dates by which steps toward compliance are to be taken, including, where applicable:

(1)(B)1.A. The date by which arrangement for an alternative water source or improvement of existing raw water source will be completed;

(1)(B)1.B. The date of initiating the connection to an alternative water source or improving the existing raw water source; and

(1)(B)1.C. The date by which final compliance is to be achieved.

(1)(B)2. Alternative for Compliance. The proposed schedule for compliance for a ariance specified in this rule, if the public water system has no access to an alternative water source and can effect or anticipate no adequate improvement of the existing raw water source, may specify an indefinite time period for compliance until a new and effective treatment technology is developed. A new compliance schedule shall be prescribed by the department at that time.

(1)(C) Public Hearing. Before the schedule may take effect, the department shall provide notice and opportunity for a public hearing on the schedule as specified in 10 CSR 60-6.040. The notice and hearing may cover more than one schedule.

(1)(D) Interim Measures. The proposed schedule for implementation of interim control measures during the period of the variance shall specify interim treatment techniques, methods, equipment and dates by which steps toward meeting the interim control measures are to be met.

(2) Schedules for Exemptions Granted Under <u>10 CSR 60-6.020</u>.

(2)(A) The department shall provide, at the time the exemption is granted, a schedule for--

(2)(A)1. Compliance (including increments of progress or measures to develop an alternative source of water supply) by the public water system with each contaminant level requirement or treatment technique requirement with respect to which the exemption was granted; and

(2)(A)2. Implementation by the public water system of the control measures the department may require for each contaminant covered by the exemption during the period ending on the date compliance with such requirement is required.

(2)(B) Before the schedule may take effect, the department shall provide notice and opportunity for a public hearing on the schedule as specified in 10 CSR 60-6.040. The notice and hearing may cover more than one (1) schedule.

(2)(C) Except as provided in subsection (2)(D), the schedule shall require compliance by the system with each contaminant level and treatment technique requirement with respect to which the exemption was granted as soon as practicable (as the department may reasonably determine)

but not later than three (3) years after the compliance date otherwise applicable to the contaminant level or treatment technique requirement.

(2)(D) In the case of a system which does not serve more than three thousand three hundred (3,300) persons and which needs financial assistance for the necessary improvements under the original compliance schedule, an exemption granted under 10 CSR 60-6.020(4)(D)1. or 2. may be renewed for one (1) or more additional two (2)-year periods, but not to exceed a total of six (6) additional years, if the system establishes that it is taking all practicable steps to meet--

(2)(D)1. The requirements of <u>10 CSR 60-6.020(4)(D)1.</u>-3.; and

(2)(D)2. The established compliance schedule to achieve full compliance with the contaminant level or treatment technique for which the exemption was granted.

(2)(E) Each exemption granted by the department under 10 CSR 60-6.020 shall be conditioned by the department upon compliance by the public water system with the schedule prescribed by the department pursuant to this subsection.

(2)(F) Schedule for Compliance. A proposed schedule for compliance shall contain the conditions as the department may prescribe and shall specify dates by which steps toward compliance are to be taken, including, where applicable:

(2)(F)1. The date by which arrangement for an alternative water source or improvement of existing raw water source will be completed;

(2)(F)2. The date of initiating the connection to an alternative water source or improving the existing raw water source; and

(2)(F)3. The date by which final compliance is to be achieved.

10 CSR 60-6.040 Public Hearings On Variance, Variance Schedules, Exemptions And Exemption Schedules

PURPOSE: This rule establishes requirements for public hearings on variances, exemptions, variance schedules and exemption schedules.

(1) Hearing Required. Before a variance, variance schedule, exemption or exemption schedule proposed by the department as required by <u>10 CSR 60-6.010</u> and <u>10 CSR 60-6.020</u> may take effect, the department shall provide notice and opportunity for public hearing on the variance, variance schedule, exemption or exemption schedule. Any hearing held pursuant to this section shall be held in an area where distribution is made by the supplier of water requesting a variance or exemption. A notice given pursuant to this section may cover the granting of more than one (1) variance, variance schedule, exemption or exemption schedule. A hearing held pursuant to the notice shall include each of the variances, variance schedules, exemptions or exemption schedule, exemption schedules, exemptions or exemption schedule, exemption schedule, exemption schedules, exemptions or exemption schedules, exemption or exemption schedules, exemption or exemption schedules, exemption or exemption schedules, exemptions or exemption schedules, exemption schedules, exemption schedules, exemption schedules, exemption or exemption schedules, exemptions or exemption schedules, exemptions, exemption schedules, exemptions, exemptions, exemption schedules, exemptions, exemptions, exemptions, exemptions, exe

also request a public hearing on the proposed variance, variance schedule, exemption or exemption schedule.

(2) Notice of Hearing Required. Public notice of an opportunity for hearing on a variance, variance schedule, exemption or exemption schedule shall be circulated in a manner designed to inform interested and potentially interested persons of the proposed variance, variance schedule, exemption or exemption schedule and shall include at least the following:

(2)(A) Posting of a notice in the principal post office of each community or area served by the public water system and publication of a notice in a newspaper(s) of general circulation in the area served by the public water system; and

(2)(B) Mailing of a notice to other appropriate state or local agencies at the department's discretion.

(3) Submission of Request. Requests for hearing may be submitted by any interested person. Frivolous or insubstantial requests for hearing may be denied by the department. Requests must be submitted to the department within thirty (30) days after issuance of the public notices provided for in this rule. These requests shall include the following information:

(3)(A) The name, address and telephone number of the individual, organization or other entity requesting a hearing;

(3)(B) A brief statement of the interest of the person making the request in the proposed variance, variance schedule, exemption or exemption schedule and of information that the requesting person intends to submit at the hearing; and

(3)(C) The signature of a responsible official of the organization or other entity.

(4) Conditions of Notice. The department shall give notice in the manner set forth in this rule of any hearing to be held pursuant to a request submitted by an interested person called upon motion of the department. Notice of the hearing shall also be sent to the persons requesting the hearing, if any. Notice of the hearing shall include a statement of the purpose of the hearing, information regarding the time and location for the hearing and the address and telephone number of any office at which interested persons may obtain further information concerning the hearing. Notice shall be given not less than fifteen (15) days prior to the time scheduled for the hearing.

(5) Character of the Hearing. A hearing convened pursuant to section (1) shall not be deemed to be a contested case hearing within the meaning of section 536.010(2), RSMo (1986). The hearing shall be conducted by the director or a hearing officer designated by the director. The hearing shall be conducted in an informal, orderly and expeditious manner. The hearing officer shall have authority to call witnesses, receive oral and written testimony and take other action as may be necessary to assure the fair and efficient conduct of the hearing.

(6) Exception to Hearing Provision. The department may provide that the variance, variance schedule, exemption or exemption schedule shall become effective thirty (30) days after notice of opportunity for hearing is given as required by this rule, or if no timely request for a hearing is submitted, and the department does not determine to hold a public hearing.

(7) Final Disposition. Within sixty (60) days after the termination of any public hearing held as required by this rule, the department shall take into consideration information obtained during the hearing and other relevant information and confirm, revise or rescind the proposed variance, variance schedule, exemption or exemption schedule as necessary.

10 CSR 60-6.050 Procedures And Requirements For Abatement Orders

PURPOSE: This rule sets forth procedures for issuing and requirements for complying with abatement orders.

(1) Whenever the department determines that an emergency condition exists that endangers or could be expected to endanger the public health and safety with regard to drinking water systems, the department may issue, without notice or hearing, an abatement order reciting the existence of the condition and requiring the supplier of water to take an action(s) that will lessen or abate the danger.

(2) Any abatement order may be appealed within thirty (30) days after issuance of the order to the circuit court of the county in which the public water system is located or, if the public water system is located in more than one (1) county, to the circuit court of any of the counties.

(3) The abatement order shall become effective immediately upon issuance. Until an appeal is filed and a determination is made by the circuit court, the supplier of water must comply with the abatement order.

(4) The abatement order shall remain in effect until the condition has been corrected to the satisfaction of the department or the order is nullified by a county circuit court.

(4)(A) Any construction or installation of facilities to correct the condition shall be done in accordance with the requirements of 10 CSR 60-3.010 and 10 CSR 60-10.010.

(4)(B) The department reserves the authority to make the final determination of whether or not a condition has been corrected.

(5) Public notification of an abatement order must be issued in accordance with Tier 1 requirements in 10 CSR 60-8.010.

10 CSR 60-6.060 Waivers From Baseline Monitoring Requirements

PURPOSE: This rule establishes waiver requirements from testing for asbestos, volatile organic chemicals, synthetic organic chemicals and inorganic chemicals.

(1) Waivers may be granted by the department in accordance with the criteria in sections (2) and (3) of this rule. The department may initiate the evaluation and issue a waiver based on its evaluation of the criteria in sections (2) and (3) of this rule. A public water system may request a waiver in accordance with sections (2) and (3) of this rule at any time if the department has not issued or denied a waiver. The request must be in writing, and the documentation submitted to support a request for a waiver from a public water system must be in a format specified by the department.

(2) Use waivers may be granted if it is determined that there has been no previous use of a contaminant within a given boundary and that the public water supply system is in no danger of contamination from the specified contaminant. Use waivers are based on the use, or absence of use, of a potentially harmful contaminant within a given boundary. The boundary size will be determined by the department and can range from a single water system to statewide. Use waivers obtained for asbestos, synthetic organic chemicals and unregulated chemicals (SOCs) may relieve the system of any sampling requirements. Use waivers will not be granted for volatile organic chemicals listed in 10 CSR 60-4.100(2) or for inorganic chemicals listed in 10 CSR 60-4.030(1) other than asbestos.

(2)(A) Asbestos listed in <u>10 CSR 60-4.030(1)(B)</u>--Waivers from analysis for asbestos in a water system will be based on the existence of asbestos-cement piping within the water system or asbestos contamination within the source water. If any asbestos-cement piping is present in any part of the treatment/distribution system, or if the source water is known to or suspected to contain asbestos, waivers will not be granted.

(2)(B) Synthetic Organic Chemicals (SOCs) listed in 10 CSR 60-4.040--Waivers from analysis for SOCs in a water system will be based on knowledge of previous use (including transportation, storage or previous disposal) within a given boundary. If a given SOC has been detected within a water system, a waiver will not be granted to that system.

(2)(C) Unregulated organic chemicals listed in 10 CSR 60-4.110(2)(A)--Waivers from analysis for unregulated organic chemicals in a water system will be based on knowledge of previous use (including transportation, storage or previous disposal) within a given boundary. If a given unregulated organic chemical has been detected within a water system, a waiver will not be granted.

(3) Susceptibility waivers may be granted in the form of reduced monitoring if all of the criteria in subsection (3)(A) are met. For assessing susceptibility, the minimum boundary area will be a radius of one-quarter (1/4) of a mile about groundwater well head(s) or the watershed area(s) of a surface water source and shall be used when examining criteria in paragraphs (3)(A)2. and (3)(A)3. Susceptibility waivers may be granted for SOCs listed in 10 CSR 60-4.040(1) including polychlorinated biphenyls (PCBs), volatile organic chemicals (VOCs) listed in 10 CSR 60-4.100(2), unregulated chemicals listed in 10 CSR 60-4.110(2)(A) and (B), and inorganic chemicals (IOCs) listed in 10 CSR 60-4.030(1) except for nitrate and nitrite.

(3)(A) Criteria for Susceptibility Waivers.

(3)(A)1. Previous analytical results show no detections.

(3)(A)2. The proximity of the system to a potential point or nonpoint source of contamination (that is, Superfund Amendments and Reauthorization Act (SARA) Title III hazardous waste site) is such that contamination is unlikely.

(3)(A)3. The environmental persistence of the contaminant is such that contamination is unlikely to occur due to the transport time, geographical and geological characteristics.

(3)(A)4. The water source is protected from contamination by being constructed in a manner no less stringent than set forth for nonpublic wells in the Water Well Construction Code 10 CSR 23-3.010--10 CSR 23-3.100 promulgated pursuant to the Missouri Water Well Drillers Act, section 256.600, RSMo.

(3)(A)5. The nitrate levels have been tested and it has been found that elevated nitrate levels indicating surface water intrusion do not exist.

(3)(A)6. The corrosive nature of the source water and the effectiveness of the systems corrosion control program.

(3)(B) PCBs--Susceptibility waivers may be granted for PCBs if the criteria in subsection (3)(A) are met and there has been no use of PCBs in the equipment used for production, storage or distribution of water, or sampling has not indicated the presence of PCBs.

10 CSR 60-6.070 Administrative Penalty Assessment

PURPOSE: This rule establishes the procedures for issuance of administrative orders and assessment of administrative penalties.

(1) General Provisions.

(1)(A) Pursuant to section 640.131, RSMo, and in addition to any other remedy provided by law, upon determination by the department that a provision of sections 640.100 to 640.140, RSMo, or a standard, limitation, order, rule, or regulation promulgated thereunder or a term or condition of any permit has been violated, the director may issue an order assessing an administrative penalty upon the violator. The amount of the administrative penalty shall be determined according to section (3) of this rule. In no event shall the penalty assessed per day of violation or the total penalty assessed per violation exceed the statutory maximums specified in subsection 640.131.2, RSMo, a summary of which is shown in the following table:

Maximum Administrative Penalty Amounts

+-----+
PUBLIC WATER | |
SYSTEM SIZE | MAXIMUM PENALTY AMOUNT |
(# of people served) |

	Amount Per Day Per Violation	Total Amount Per Violation
less than 500	\$100	\$1,000
500 to 9,999	\$250	\$5,000
10,000 or more	\$1,000	\$25,000

(1)(B) An administrative penalty shall not be imposed until the department has sought to resolve the violation(s) through conference, conciliation and persuasion and shall not be imposed for minor violations. If the violation is resolved through conference, conciliation and persuasion, no administrative penalty shall be assessed unless the violation has caused a risk to human health or to the environment, or has caused or has the potential to cause pollution or was knowingly committed.

(1)(C) An order assessing an administrative penalty shall be served upon the supplier of water or appropriate representative of the supplier of water through United States Postal Service certified mail, return receipt requested; a private courier or messenger service which provides verification of delivery; or by hand delivery to the residence or place of business of the supplier of water. An order assessing an administrative penalty shall be considered served if verified receipt is made by the supplier of water or an appropriate representative of the supplier of water. Rejection of or refusal to accept private courier service, messenger service, hand delivery or certified mail delivery of an order assessing an administrative penalty constitutes service of the order.

(1)(D) The director may at any time withdraw without prejudice any administrative order or administrative penalty.

(1)(E) An order assessing an administrative penalty shall describe the nature of the violation(s), the amount of the administrative penalty, and the basis of the penalty calculation.

(1)(F) The director may suspend a penalty in whole or in part when deemed appropriate. The director shall consider the following factors, as a minimum, in evaluating the appropriateness of suspended penalties: timeliness in response to violation(s), history of past violations, cooperative efforts towards compliance, severity of violation(s), relative risk to human health, and other extenuating circumstances. Penalties suspended under this provision may be reinstated if the violator fails to comply with all provisions of the administrative order or fails to remain in compliance for a period of one (1) year from the final compliance date of the administrative order.

(1)(G) An administrative penalty shall not be increased in those instances where department action, or failure to act, has caused a continuation of the violation that was a basis for the penalty. Sample collection and analysis by the department to verify the quality of the water, regardless of the analytical results, shall not be construed as department action that has caused continuation of the violation. Any administrative penalty shall be assessed within two (2) years following the department's initial discovery of such alleged violation, or from the date the department in the exercise of ordinary diligence should have discovered such alleged violation.

(1)(H) Any final order imposing an administrative penalty is subject to judicial review upon the filing of a petition pursuant to section 536.100, RSMo, by any person subject to the administrative penalty. No judicial review shall be available, however, until all administrative remedies are exhausted.

(1)(I) The director may elect to assess an administrative penalty, or, in lieu thereof, to request that the attorney general or prosecutor file an appropriate legal action seeking a civil penalty in the appropriate circuit court.

(2) Definitions.

(2)(A) Definitions for key words used in this rule may be found in 10 CSR 60-2.015.

(2)(B) Additional definitions specific to this rule are as follows:

(2)(B)1. Conference, conciliation and persuasion. A process of verbal or written communications consisting of meetings, reports, correspondence or telephone conferences between authorized representatives of the department and the alleged violator. The process shall, at a minimum, consist of one (1) offer to meet with the alleged violator tendered by the department. During any such meeting, the department and the alleged violator shall negotiate in good faith to eliminate the alleged violation and shall attempt to agree upon a plan to achieve compliance;

(2)(B)2. Gravity-based assessment. The degree of seriousness of a violation taking into consideration the risk to human health or the environment posed by violations of sections 640.100 to 640.140, RSMo, and associated rules and permits;

(2)(B)3. Major violation. A violation that poses or may pose a substantial risk to human health or to the environment, or has or may have a substantial adverse effect on the purposes of or procedures for implementing the law and associated rules or permits;

(2)(B)4. Minor violation. A violation that poses a small potential to harm the environment or human health or cause pollution, and was not knowingly committed;

(2)(B)5. Moderate violation. A violation that poses or may pose a significant risk to human health or to the environment, or has or may have a significant adverse effect on the purposes of or procedures for implementing the law and associated rules or permits;

(2)(B)6. Multiple violation penalty. The sum of individual administrative penalties assessed when two (2) or more violations are included in the same complaint or enforcement action;

(2)(B)7. Multi-day violation. A violation that has occurred on or continued for two (2) or more consecutive or nonconsecutive days; and

(2)(B)8. Potential for harm. The extent to which a violation poses a risk to human health or the environment or has a substantial adverse effect on the purposes of or procedures for implementing the law and associated rules or permits.

(3) Determination of Penalties. In determining the amount of the administrative penalty, the department shall take into consideration all relevant circumstances, including, but not limited to, the harm which the violation causes or may cause, the violator's previous compliance record, the nature and persistence of the violation, any corrective actions taken, the number of people served by the water system and any other factors which the department may reasonably deem relevant. The amount of an administrative penalty shall involve the application of a gravity-based assessment under subsection (3)(A) of this rule and may be adjusted within the selected penalty range as specified in subsection (3)(B) of this rule. Determination of the penalty may also involve additional factors for multiple violations (subsection (3)(C) of this rule) and multi-day violations (subsection (3)(D) of this rule). The resulting total penalty amount may be further adjusted as specified under subsection (3)(E) of this rule.

(3)(A) Gravity-Based Assessment. The gravity-based assessment is determined by evaluating the potential for harm posed by the violation and the number of people affected or potentially affected by the violation.

(3)(A)1. Potential for harm. The potential for harm associated with a violation is based on the extent to which the violation poses a risk to human health or the environment or has a substantial adverse effect on the purposes of or procedures for implementing the law and associated rules or permits.

(3)(A)1.A. The risk of exposure is dependent on both the likelihood that humans or the environment may be exposed to contaminants and the degree of potential exposure. Penalties will reflect the probability the violation either did result in, or could have resulted in, release of contaminants to the environment or introduction of contaminants into a public water system, and the harm which did occur, or would have occurred, if the release to the environment or contamination of the water system had in fact occurred.

(3)(A)1.B. Violations that have an adverse effect upon the purposes of the law or procedures for implementing the law and associated rules or permits may be grounds for assessment of penalties.

(3)(A)1.C. The potential for harm shall be evaluated according to the following degrees of severity:

(3)(A)1.C.(I) Major. Violations that pose a major potential for harm shall include, but not be limited to, the following: failure to act in an emergency situation; failure to comply with an order issued by the department; failure to meet disinfection requirements; failure to disinfect newly repaired water mains; failure to respond adequately to total water outages; failure to comply with maximum contaminant levels (MCLs) or treatment technique requirements; failure to issue public notice for acute MCL violations; and other violations that pose a direct impact or immediate threat to public health;

(3)(A)1.C.(II) Moderate. Violations that pose a moderate potential for harm shall include, but not be limited to, the following: failure to issue public notice for violations other than acute MCL violations; failure to comply with monitoring requirements; failure to comply with lead and

copper regulatory requirements other than treatment technique requirements; failure to maintain required minimum pressure in the water system; failure to obtain a construction permit or a permit to dispense water; failure to meet operator certification requirements; failure to meet construction standards; failure to meet operational requirements; failure to properly operate and maintain the water system; failure to comply with backflow prevention requirements; failure to meet the conditions of a compliance schedule developed under a bilateral compliance agreement, exemption, or variance; violations that do not meet the definition of "minor" violations; and other violations that pose a serious or long-term threat to public health; and

(3)(A)1.C.(III) Minor. Violations that pose a minor potential for harm shall include, but not be limited to, the following: failure to maintain records, microbiological sample siting plans, emergency operations plans, or other required documents; failure to meet reporting requirements; failure to pay required fees; and other violations related to the management and administration of the system.

(3)(A)2. Number of people affected. The penalty amount is dependent on the size of the public water system, expressed in terms of the number of people who receive water from the public water system.

(3)(A)3. Gravity-based penalty assessment matrix. The matrix that follows is based on the potential for harm and the number of people affected or potentially affected, and is to be used to determine the gravity-based assessment portion of the administrative penalty. Potential for harm and size of public water system form the axes of the matrix. The matrix has nine cells, each containing a penalty range. For a particular violation, the appropriate penalty range (cell) is selected according to the size of the public water system and by determining the category (major, moderate, or minor) most appropriate for the potential for harm factor. The penalty amount is initially set at the midpoint of the selected penalty range, but may be adjusted within the penalty range, as specified in subsection (3)(B) of this rule, for the circumstances of a particular violation. The values shown in the matrix are expressed in terms of penalty amount per day of noncompliance for each violation.

Potential				
for	Size of Public Water System (number of people served)			
Harm				
	Less than 500	500 to 9,999	10,000 or more	
Major	\$100-\$61	\$250-\$151	\$1,000-\$601	
(midpoint)	(\$80)	\$200)	(\$800)	
Moderate	\$60-\$20	\$150-\$50	\$600-\$200	
(midpoint)	(\$40)	(\$100)	(\$400)	
+	+\$0	+	*+	
Minor	\$0	\$0	\$0	
+	+	+	*+	

Gravity-Based Penalty Assessment Matrix (penalty range per day per violation)

(3)(B) Adjustments to the Penalty Amount Within the Selected Penalty Range. The department may add to or subtract from the amount of the penalty, within the selected penalty range of the matrix, after consideration of the following adjustment factors:

(3)(B)1. Good faith efforts to comply. The department may adjust a penalty amount downward, within the selected penalty range, if the violator adequately demonstrates good faith efforts. Good faith efforts include, but are not limited to, documentation that the violator has reported noncompliance or instituted measures to remedy the violation prior to detection by the department. However, good faith efforts to achieve compliance after agency detection are not grounds for decreasing the penalty amount;

(3)(B)2. Culpability. In cases of heightened culpability that do not meet the standard of criminal activity, the penalty may be increased at the department's discretion, within the selected range of the matrix. Likewise, in cases where there is a demonstrable absence of culpability, the department may decrease the penalty. Lack of knowledge of the law or any associated rule or permit shall not be a basis for decreased culpability. The following criteria shall be used to determine culpability:

(3)(B)2.A. How much control the violator had over the events constituting the violation;

(3)(B)2.B. Whether the events constituting the violation were foreseeable;

(3)(B)2.C. Whether the violator took reasonable precautions against the events constituting the violation;

(3)(B)2.D. Whether the violator knew or should have known of the hazards associated with the conduct; and

(3)(B)2.E. Whether the violator knew or should have known of the legal requirement that was violated (this shall be used only to increase a penalty, not to decrease it); and

(3)(B)3. History of noncompliance. When there has been a history of noncompliance with the law or any associated rule or permit, to a degree deemed significant due to frequency, similarity or seriousness of past violations, and considering the violator's response to previous enforcement actions, the department may increase the administrative penalty, within the selected penalty range. No downward adjustment is allowed because of this factor.

(3)(C) Multiple Violation Penalty. Penalties for multiple violations may be determined when a violation is independent of or substantially different from any other violation. The director may order a separate administrative penalty for each violation as set forth in this rule.

(3)(D) Multi-Day Penalty. Penalties for multi-day violations may be determined when the director has concluded that a violation(s) has continued or occurred for more than one (1) day. Multi-day penalty assessments shall be determined by using the Gravity-Based Penalty Assessment Matrix in this section to determine the penalty amount per day per violation, and multiplying that amount by the number of days of noncompliance. The director may seek

penalties for each day of noncompliance, not to exceed the statutory maximums specified in subsection 640.131.2, RSMo.

(3)(E) Adjustments to Total Penalty Amount. The department may add to or subtract from the total amount of the penalty, not to exceed the statutory maximums specified in subsection 640.131.2, RSMo, after consideration of the following adjustments:

(3)(E)1. Recalculation of penalty amount. If, after issuance of an order by the director, new information about a violation becomes available which indicates that the original penalty calculation may have been incorrect, it may be necessary to recalculate the penalty in light of the new information;

(3)(E)2. Ability to pay. When a violator has adequately documented that payment of all or a portion of the administrative penalty will preclude the violator from achieving compliance or from carrying out important remedial measures, the department may--

(3)(E)2.A. Waive or suspend any portion or all of the administrative penalty; or

(3)(E)2.B. Negotiate a delayed payment schedule, installment plan or penalty reductions with stipulated penalties. The department may require the supplier of water to submit documents to verify inability to pay, including, but not limited to: federal tax returns and financial statements, annual financial reports, and a list of assets with corresponding fair market values; and

(3)(E)3. Other adjustment factors. This rule allows for other penalty adjustments based on fairness and equity not mentioned in this rule which may arise on a case-by-case basis.

(4) Payment of Penalty. The proceeds from any administrative penalty assessed in accordance with this rule shall be paid to the county treasurer of the county in which the violation(s) occurred for the use and benefit of the county public schools, in accordance with section 7 of article IX of the Missouri Constitution. An administrative penalty shall be paid within sixty (60) days from the date of issuance of the order assessing the penalty, unless appealed per section (5) of this rule. Any person who fails to pay an administrative penalty by the final due date shall be liable to the state for a surcharge of fifteen percent (15%) of the penalty plus ten percent (10%) per annum on any amounts owed. An action may be brought in the appropriate circuit court to collect any unpaid administrative penalty, and for attorney's fees and costs incurred directly in the collection thereof.

(5) Appeal Process. Any order assessing an administrative penalty shall state that an administrative penalty is being assessed under section 640.131, RSMo, and that the person subject to the penalty may appeal as provided by this section. Any such order which fails to state the law or regulation under which the penalty is being sought, the manner of collection or rights of appeal shall result in the state's waiving any right to collection of the penalty. Should any person subject to an administrative penalty want to appeal the penalty, that person shall appeal to the Safe Drinking Water Commission within thirty (30) days of the date of issuance of the order assessing the penalty. Any appeal shall stay the due date of such administrative penalty until the appeal is resolved.
(6) Natural Resource Damages. Nothing in this rule shall be construed as satisfying any claims by the state or federal government for natural resource damages.

10 CSR 60-7 Chapter 7--Reporting

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10 CSR 60-7.010 Reporting Requirements

<u>10 CSR 60-7.020</u> Reporting Requirements For Lead And Copper Monitoring

10 CSR 60-7.010 Reporting Requirements

PURPOSE: This rule establishes requirements for reports of water sample analyses and monitoring.

(1) General Information. Except where a shorter period is specified in this rule, the supplier of water shall report to the department the results of any test measurement or analysis, except operational analyses required by 10 CSR 60-4.080(3) other than those specified in sections (4) and (5) of this rule, within the first ten (10) days following the month in which the result is received or the first ten (10) days following the end of the required monitoring period as stipulated by the department, whichever of these is shortest.

(2) Within forty-eight (48) hours a supplier of water must report to the department any failure to comply with any drinking water regulation, including failure to comply with monitoring requirements, except where a shorter period is specified by the department.

(3) A supplier of water is not required to report analytical results to the department when a state laboratory performs the analysis and reports the results to the department.

(4) Turbidity measurements as required by 10 CSR 60-4.080(3) must be reported within ten (10) days after the end of each month the system serves water to the public. Information that must be reported includes:

(4)(A) The total number of filtered water turbidity measurements taken during the month;

(4)(B) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in 10 CSR 60-4.050; and

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

(5) Disinfection information must be reported within ten (10) days after the end of each month the system serves water to the public.

(5)(A) Information that must be reported includes:

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(5)(A)1. For each day, the lowest measurement of residual disinfectant concentration in milligrams per liter (mg/l) in water entering the distribution system;

(5)(A)2. The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.5 mg/l free chlorine or one (1) mg/l chloramines and when the department was notified of the occurrence; and

(5)(A)3. The following information on the samples taken in the distribution system:

(5)(A)3.A. Number of instances where the residual disinfectant concentration is measured;

(5)(A)3.B. Number of instances where the residual disinfectant concentration is not measured but the heterotrophic bacteria plate count (HPC) is measured;

(5)(A)3.C. Number of instances where the residual disinfectant concentration is measured but is less than 0.2 mg/l and no HPC is measured;

(5)(A)3.D. Number of instances where residual disinfectant concentration is less than 0.2 mg/l and where the HPC is greater than five hundred per milliliter (HPC > 500/ml);

(5)(A)3.E. Number of instances where the residual disinfectant concentration is not measured and the HPC is greater than five hundred per milliliter (HPC >500/ml); and

(5)(A)3.F. For the current and previous month the system serves water to the public, the value of V in the following formula:

 $(c + d + e) \times 100$ V = ----a + b

where:

V = the percentage of time that the disinfectant residual is less than the required residual;

a = the value in subparagraph (5)(A)3.A. of this rule;

b = the value in subparagraph (5)(A)3.B. of this rule;

c = the value in subparagraph (5)(A)3.C. of this rule;

d = the value in subparagraph (5)(A)3.D. of this rule; and

e = the value in subparagraph (5)(A)3.E. of this rule.

(5)(B) If the department determines, based upon site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory within the requisite time and temperature conditions specified in 10 CSR 60-5 and that the system is

providing adequate disinfection in the distribution system, the requirements of paragraph (5)(A)3. do not apply.

(5)(C) A system need not report the data listed in subsection (5)(A) of this rule if all of that data remains on file at the system and the department determines that the system has submitted all the information required by subsection (5)(A) of this rule for at least twelve (12) months.

(6) Reporting and Record Keeping Requirements for Disinfection By-products and Enhanced Surface Water Treatment.

(6)(A) Compliance Dates.

(6)(A)1. CWS and NTNCWS serving ten thousand (10,000) or more persons and using surface water or ground water under the direct influence of surface water must comply with these requirements beginning December 16, 2001.

(6)(A)2. CWS and NTNCWS serving fewer than ten thousand (10,000) persons and using surface water or ground water under the direct influence of surface water, and systems using only ground water not under the direct influence of surface water, must comply with these requirements beginning December 16, 2003.

(6)(A)3. Transient NCWSs serving ten thousand (10,000) or more persons and using surface water or ground water under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide and chlorite in this rule beginning December 16, 2001.

(6)(A)4. Transient NCWSs serving fewer than ten thousand (10,000) persons, using surface water or ground water under the direct influence of surface water, and using chlorine dioxide as a disinfectant or oxidant, and systems using only ground water and using chlorine dioxide as a disinfectant or oxidant, must comply with any requirements in this rule for chlorine dioxide and chlorite in this rule beginning December 16, 2003.

(6)(B) Disinfection By-Products. Systems must report the information specified in the following table:

	+	
If you are		You must
report1		
	+	
System monitoring for TTHM and HAA5 under the	(1)	The number of samples
taken during the last quarter.		
requirements of $10 \text{ CSR } 60-4.090(3)(B)$ on a	(2)	The location, date, and
result of each sample taken		
quarterly or more frequent basis.		during the last
quarter.		
	(3)	The arithmetic average
of samples taken in the last		

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quarter. (4) The annual arithmetic average of the quarterly arithmetic averages of this section for the last four quarters. (5) Whether the MCL as exceeded. _____+ _____ System monitoring for TTHMs and HAA5 under the (1) The number of samples taken during the last quarter. requirements of 10 CSR 60-4.090(3)(B) less (2) The location, date, and result of each sample taken frequently than quarterly (but at least annually) | during the last monitoring period. (3) The arithmetic average of all samples taken over the last year. (4) Whether the MCL was exceeded. _____ System monitoring for TTHMs and HAA5 under the |(1) The location, date, and result of the last sample requirements of 10 CSR 60-4.090(3)(B) less taken. frequently than annually. (2) Whether the MCL was exceeded. _____ System monitoring for chlorite under the |(1) The number of samples taken each month for the last 3 requirements of 10 CSR 60-4.090(3)(B). months. (2) The location, date, and result of each sample taken during the last quarter. (3) For each month in the reporting period, the arithmetic average of all samples taken in the month. (4) Whether the MCL was exceeded, and in which month it was exceeded. _____ (1) The number of samples System monitoring for bromate under the taken during the last quarter. requirements of 10 CSR 60-4.090(3)(B). (2) The location, date, and result of each sample taken during the last quarter. (3) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year. (4) Whether the MCL was

exceeded.

1 The department may choose to perform calculations and determine whether the MCL was exceeded, in lieu of having the system report that information.

_____+

(6)(C) Disinfectant Residuals. Systems must report the information specified in the following table:

------_____ If you are... | You must report...1 System monitoring for chlorine or |(1) The number of samples taken during each month of the chloramines under the | last quarter. requirements of 10 CSR 60- |(2) The monthly arithmetic average of all samples taken 4.090(3)(C). in each month for the last 12 months. (3) The arithmetic average of all monthly averages for the last 12 months. (4) Whether the MRDL was exceeded. _____ _____ System monitoring for chlorine (1) The dates. results, and locations of samples taken samples takenduring the last quarter.dioxide under the|requirements of 10 CSR 60-|(2) Whether the MRDL was exceeded.(3) Whether the MRDL was exceeded in the MRDL was exceeded (3) Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute. _____+ _____

1 The department may choose to perform calculations and determine whether the MRDL was exceeded, in lieu of having the system report that information.

(6)(D) Disinfection By-Product Precursors and Enhanced Coagulation or Enhanced Softening. Systems must report the information specified in the following table:

If you are... You must report...1 (1) The number of paired (source water and treated System monitoring monthly or quarterly | water, prior to continuous

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disinfection) samples taken for TOC under the requirements of 10 during the last quarter. CSR 60-4.090(4)(D) and required to (2) The location, date, and result of each paired sample meet the enhanced coagulation or and associated alkalinity taken during the last guarter. enhanced softening requirements in (3) For each month in the reporting period that paired 10 CSR 60-4.090(4)(D)3. samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal. (4) Calculations for determining compliance with the TOC percent removal requirements. (5) Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements for the last four (4) quarters. -----+ _____ System monitoring monthly or quarterly |(1) The alternative compliance criterion that the for TOC under the requirements of 10 system is using. CSR 60-4.090(4)(D) and meeting one or |(2) The number of paired samples taken during the more of the alternative compliance last quarter. criteria in 10 CSR 60-4.090(4)(D)1. (3) The location, date, and result of each paired or 2. sample and associated alkalinity taken during the last quarter. (4) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in 10 CSR 60-4.090(4)(D)1.A. or C. or of treated water TOC for systems meeting the criterion in 10 CSR 60-4.090(4)(D)1.B. (5) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in 10 CSR 60-4.090(4)(D)1.E. or of treated water SUVA for systems meeting the criterion in 10 CSR 60-4.090(4)(D)1.F.

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(6)	The running annual average of
	alkalinity for systems meeting
	CSR 60-4.090(4)(D)1.C. and of
	for systems meeting the criterion
1	(0, 4, 000(4))
	00-4.090(4)(D)2.
(/)	The fulliting allituat average for
1	for systems meeting the criterion
I	
	60-4.090(4)(D)1.C. or D.
(8)	The running annual average of the
	magnesium hardness removal (as
	systems meeting the criterion in
	60-4.090(4)(D)2.B.
(9)	Whether the system is in
1	
	particular alternative compliance
1	60-4 090(4)(D)1 or 2
 .+	
	(6) (7) (8) (8) (9)

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

(7) Enhanced Filtration and Disinfection Reporting and Record Keeping Require-ments. In addition to the reporting and record keeping requirements in sections (5) and (8) of this rule, a public water system subject to the requirements of 10 CSR 60-4.055(6) that provides conventional filtration treatment must report monthly to the department the information specified in subsections (7)(A) and (7)(B) of this rule beginning January 1, 2002. In addition to the reporting and record keeping requirements in sections (5) and (8) of this rule, a public water system subject to the requirements of 10 CSR 60-4.055(6) that provides filtration approved under 10 CSR 60-4.050(3)(G) must report monthly to the department the information specified in subsection (7)(A) of this rule beginning January 1, 2002. The reporting in subsection (7)(A) of this rule beginning January 1, 2002. The reporting in subsection (7)(A) of this rule beginning January 1, 2002. The reporting in subsection (7)(A) of this rule beginning January 1, 2002. The reporting in subsection (7)(A) of this rule beginning January 1, 2002. The reporting in subsection (7)(A) of this rule beginning January 1, 2002. The reporting in subsection (7)(A) of this rule beginning January 1, 2002. The reporting in subsection (7)(A) of this rule beginning January 1, 2002.

(7)(A) Turbidity measurements as required by 10 CSR 60-4.050(3)(B) must be reported within ten (10) days after the end of each month the system serves water to the public. Information that must be reported includes:

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

(7)(A)2. The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in 10 CSR 60-4.050(3)(B)1. or 2.; and

(7)(A)3. The date and value of any turbidity measurements taken during the month which exceed 1 NTU for systems using conventional filtration treatment, or which exceed the applicable maximum level.

(7)(B) Systems must maintain the results of individual filter monitoring taken under 10 CSR 60-4.050(3)(E) for at least three (3) years. Systems must report that they have conducted individual filter turbidity monitoring under 10 CSR 60-4.050(3)(E) within ten (10) days after the end of each month the system serves water to the public. Systems must report the individual filter turbidity measurement results within ten (10) days after the end of each month the system serves water to the public. Systems must report the individual filter turbidity measurement results within ten (10) days after the end of each month the system serves water to the public only if measurements demonstrate one (1) or more of the conditions in paragraphs (7)(B)1.-2. of this rule. Systems that use lime softening may apply to the department for alternative exceedance levels for the levels specified in this subsection (7)(B) if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

(7)(B)1. Surface water systems that serve more than ten thousand (10,000) people must report the individual filter turbidity measurement results within ten (10) days after the end of each month only if measurements demonstrate one (1) or more of the following conditions.

(7)(B)**1.**A. For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two (2) consecutive measurements taken fifteen (15) minutes apart, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within seven (7) days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

(7)(B)1.B. For any individual filter that 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 offline, the system must report the filter number, the turbidity, and the date(s) on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within seven (7) days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

(7)(B)1.C. For any individual filter that 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 must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must conduct a self-assessment of the filter within fourteen (14) days of the exceedance and report that the self-assessment was conducted. The self-assessment must consist of at least the following

components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report.

(7)(B)1.D. For any individual filter that 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 must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must arrange for the conduct of a Comprehensive Performance Evaluation by the department or a third party approved by the department no later than thirty (30) days following the exceedance and have the evaluation completed and submitted to the department no later than ninety (90) days following the exceedance.

(7)(B)1.D.(I) The Comprehensive Performance Evaluation is 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 must consist of at least the following components: Assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of a Comprehensive Performance Evaluation report.

(7)(B)1.D.(II) If the Comprehensive Performance Evaluation results indicate improved performance potential, the system shall implement Comprehensive Technical Assistance. The system must identify and systematically address plant-specific factors. The Comprehensive Technical Assistance is a combination of utilizing Comprehensive Performance Evaluation results as a basis for followup, implementing process control priority-setting techniques, and maintaining long-term involvement to systematically train staff and administrators.

(7)(B)2. Surface water systems that serve less than ten thousand (10,000) people must report the individual filter turbidity measurements within ten (10) days after the end of each month only if measurements demonstrate one (1) or more of the following conditions.

(7)(B)2.A. For any individual filter that exceeds 1.0 NTU in two (2) consecutive recordings fifteen (15) minutes apart, the system must report the filter number(s), corresponding date(s), turbidity value(s) which exceeded 1.0 NTU, and the cause (if known) for the exceedance(s).

(7)(B)2.B. For any individual filter that for three (3) months in a row the turbidity exceeded 1.0 NTU in two (2) consecutive recordings fifteen (15) minutes apart, the system must conduct a self-assessment of the filter(s) within fourteen (14) days of the triggering event. The system must report the date self-assessment was triggered and the date it was completed. The self-assessment must consist of at least the following components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-

assessment report. The filter self-assessment is not required if a comprehensive performance evaluation (CPE) was required.

(7)(B)2.C. For any individual filter that for two (2) months in a row the turbidity exceeded 2.0 NTU in two (2) consecutive recordings, fifteen (15) minutes apart, the system must arrange to have a CPE conducted not later than sixty (60) days following the triggering event. The CPE must be conducted by the department or a third party approved by the department. If a CPE has been completed by the department or a third party approved by the department within the twelve (12) prior months or the system and department are jointly participating in an ongoing Comprehensive Technical Assistance (CTA) project at the system, a new CPE is not required. If conducted, a CPE must be completed and submitted to the department no later than one hundred twenty (120) days following the triggering event.

(7)(C) Additional turbidity reporting requirements. Reporting requirements for turbidity exceedences are in 10 CSR 60-4.050(3).

(8) Stage 2 Disinfectants/Disinfection By-Products (D/DBP) Rule Reporting and Record-Keeping Requirements.

(8)(A) Reporting.

(8)(A)1. You must report the following information for each monitoring location to the department within ten (10) days of the end of any quarter in which monitoring is required:

(8)(A)1.A. Number of samples taken during the last quarter;

(8)(A)1.B. Date and results of each sample taken during the last quarter;

(8)(A)1.C. Arithmetic average of quarterly results for the last four (4) quarters for each monitoring location (LRAA), beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter. If the LRAA calculated based on fewer than four (4) quarters of data would cause the maximum contaminant level (MCL) to be exceeded regardless of the monitoring results of subsequent quarters, you must report this information to the department as part of the first report due following the compliance date or anytime thereafter that this determination is made. If you are required to conduct monitoring at a frequency that is less than quarterly, you must make compliance calculations beginning with the first compliance sample taken after the compliance date, unless you are required to conduct increased monitoring under section 10 CSR 60-4.094(6);

(8)(A)1.D. Whether based on 10 CSR 60-4.090(1)(D) and this rule, the MCL was violated at any monitoring location; and

(8)(A)1.E. Any operational evaluation levels that were exceeded during the quarter and, if so, the location and date, and the calculated total trihalomethanes (TTHM) and haloacetic acids 5 (HAA5) levels.

(8)(A)2. If you are a surface water system or ground water under the direct influence of surface water system seeking to qualify for or remain on reduced TTHM/HAA5 monitoring, you must report the following source water total organic carbon (TOC) information for each treatment plant that treats surface water or ground water under the direct influence of surface water to the department within ten (10) days of the end of any quarter in which monitoring is required:

(8)(A)2.A. The number of source water TOC samples taken each month during last quarter;

(8)(A)2.B. The date and result of each sample taken during last quarter;

(8)(A)2.C. The quarterly average of monthly samples taken during last quarter or the result of the quarterly sample;

(8)(A)2.D. The running annual average (RAA) of quarterly averages from the past four (4) quarters; and

(8)(A)2.E. Whether the RAA exceeded 4.0 mg/L.

(8)(A)3. The department may choose to perform calculations and determine whether the MCL was exceeded or the system is eligible for reduced monitoring in lieu of having the system report that information.

(9) Each system, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, must report that occurrence to the department as soon as possible but no later than by the end of the next business day. If the system is notified by the department or the Department of Health and Senior Services of an outbreak, the reporting requirement of this section is waived.

(10) A supplier of water shall submit proof to the department that public notification has been made within ten (10) days of the date that the notice was to have been made for initial public notice and any repeat notices. The supplier of water shall provide a certification he/she has fully complied with the public notification regulations, and shall provide 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.

(11) Reporting Requirements for the Ground Water Rule.

(11)(A) In addition to any other applicable reporting requirements of this rule, a ground water system regulated under 10 CSR 60-4.025 must provide the following information to the department:

(11)(A)1. A ground water system conducting compliance monitoring under <u>10 CSR 60-</u> <u>4.025(4)(B)</u> must notify the department any time the system fails to meet any departmentspecified requirements including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four (4) hours. The ground water system must notify the department as soon as possible, but in no case later than the end of the next business day;

(11)(A)3. If a ground water system subject to the requirements of 10 CSR 60-4.025(3)(A) does not conduct source water monitoring under subparagraph (3)(A)5.B. of that rule, the system must provide documentation to the department within thirty (30) days of the total coliform-positive sample that the system met the department criteria.

10 CSR 60-7.020 Reporting Requirements For Lead And Copper Monitoring

PURPOSE: This rule establishes requirements for reports of water sample analyses and monitoring for lead and copper.

(1) Reporting requirements for lead and copper tap water monitoring and for water quality parameter monitoring.

(1)(A) Except as provided in paragraph (1)(A)7. of this rule, a water system shall report to the department the information required by this subsection for all tap water samples and all water quality parameter samples specified in 10 CSR 60-15.080 within the first ten (10) days following the end of each applicable monitoring period specified in 10 CSR 60-15.070, 10 CSR 60-15.080, and 10 CSR 60-15.090 (such as, every six (6) months, annually, or every three (3) years). For monitoring periods with a duration less than six (6) months, the end of the monitoring period is the last date samples can be collected during that period as specified in 10 CSR 60-15.070 and 10 CSR 60-15.070 and 10 CSR 60-15.080. The water system shall report--

(1)(A)1. The results of all tap samples for lead and copper including the location of each site and the criteria under 10 CSR 60-15.070(1) under which the site was selected for the system's sampling pool;

(1)(A)2. Documentation for each tap water lead or copper sample for which the water system requests invalidation pursuant to 10 CSR 60-15.070(6);

(1)(A)3. The ninetieth percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with 10 CSR 60-15.010(3)(C)), unless the department calculates the system's ninetieth percentile lead and copper levels under section (8) of this rule;

(1)(A)4. With the exception of initial tap sampling conducted pursuant to 10 CSR 60-15.070(4)(A), the system shall specify any site which was not sampled during previous monitoring periods and include an explanation of why sampling sites have changed;

(1)(A)5. The results of all tap samples for pH and, where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under 10 CSR 60-15.080(2)-(5);

(1)(A)6. The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under 10 CSR 60-15.080(2)-(5); and

(1)(A)7. A water system shall report the results of all water quality parameter samples collected under 10 CSR 60-15.080(3)-(6) during each six- (6-) month monitoring period specified in 10 CSR 60-15.080(4) within the first ten (10) days following the end of the monitoring period unless the department has specified a more frequent reporting requirement.

(1)(B) For a non-transient non-community water system, or a community water system meeting the criteria of 10 CSR 60-15.060(2)(G) and that does not have enough taps that can provide first-draw samples, the system must either--

(1)(B)1. Provide written documentation to the department identifying standing times and locations for enough non-first-draw samples to make up its sampling pool under 10 CSR 60-15.070(2)(E) by the start of the first applicable monitoring period under 10 CSR 60-15.070(4) that commences after April 11, 2000, unless the department has waived prior department approval of non-first-draw sample sites selected by the system pursuant to 10 CSR 60-15.070(2)(E); or

(1)(B)2. If the department has waived prior approval of non-first-draw sample sites selected by the system, identify, in writing, each site that did not meet the six- (6-) hour minimum standing time and the length of standing time for that particular substitute sample collected pursuant to $\underline{10}$ CSR 60-15.070(2)(E) and include this information with the lead and copper tap sample results required to be submitted pursuant to paragraph (1)(A)1. of this rule.

(1)(C) At a time specified by the department, or if no specific time is designated by the department, then as early as possible prior to the addition of a new source or any long-term change in water treatment, a water system deemed to have optimized corrosion control under 10 CSR 60-15.020(3)(C), a water system subject to reduced monitoring pursuant to 10 CSR 60-15.070(4)(D), or a water system subject to a monitoring waiver pursuant to 10 CSR 60-15.070(7) shall submit written documentation to the department describing the change or addition. The department must review and approve the addition of a new source or long-term change in treatment before it is implemented by the water system. Examples of long-term treatment changes include the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include switching secondary disinfectants, switching coagulants (for example, alum to ferric chloride), and switching corrosion inhibitor products (for example, orthophosphate to blended phosphate). Long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with daily raw water quality changes.

(1)(D) Any small system applying for a monitoring waiver under 10 CSR 60-15.070(6), or subject to a waiver granted pursuant to 10 CSR 60-15.070(6)(C), shall provide the following information to the state in writing by the specified deadline:

(1)(D)1. By the start of the first applicable monitoring period in 10 CSR 60-15.070(4), any small water system applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of 10 CSR 60-15.070(6)(A)-(B);

(1)(D)2. No later than nine (9) years after the monitoring previously conducted pursuant to $\underline{10}$ CSR 60-15.070(6)(B) or 10 CSR 60-15.070(6)(D)1., each small system desiring to maintain its monitoring waiver shall provide the information required by 10 CSR 60-15.070(6)(D)1. and 2.; and

(1)(D)3. No later than sixty (60) days after it becomes aware that it is no longer free of leadcontaining and/or copper-containing material, as appropriate, each small system with a monitoring waiver shall provide written notification to the state, setting forth the circumstances resulting in the lead-containing and/or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(1)(E) Each groundwater system that limits water quality parameter monitoring to a subset of entry points under 10 CSR 60-15.080(3)(C) shall provide, by the commencement of such monitoring, written correspondence to the department that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(2) Source Water Monitoring Reporting Requirements.

(2)(A) A water system shall report the sampling results for all source water samples collected in accordance with 10 CSR 60-15.090 within the first ten (10) days following the end of each source water monitoring period (that is, annually, per compliance period, per compliance cycle) specified in 10 CSR 60-15.090.

(2)(B) With the exception of the first round of source water sampling conducted pursuant to $\underline{10}$ <u>CSR 60-15.090(2)</u>, the system shall specify any site which was not sampled during previous monitoring periods and include an explanation of why the sampling point has changed.

(3) Corrosion Control Treatment Reporting Requirements. By the applicable dates under 10 CSR <u>60-15.020</u>, systems shall report the following information:

(3)(A) For systems demonstrating that they have already optimized corrosion control, information required in 10 CSR 60-15.020(1)(B) or (2)(B);

(3)(B) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under 10 CSR 60-15.030(1);

(3)(C) For systems required to evaluate the effectiveness of corrosion control treatments under 10 CSR 60-15.030(3), the information required by that section; and

(3)(D) For systems required to install optimal corrosion control designated by the department under 10 CSR 60-15.030(4), a letter certifying that the system has completed installation of that treatment.

(4) Source Water Treatment Reporting Requirements. By the applicable dates in 10 CSR 60-15.040, systems shall provide the following information to the department:

(4)(A) If required under 10 CSR 60-15.040(2), their recommendation regarding source water treatment; and

(4)(B) For systems required to install source water treatment under 10 CSR 60-15.040(2)(A), a letter certifying that the system has completed installation of the treatment designated by the department within twenty-four (24) months after the department designated the treatment.

(5) Lead Service Line Replacement Reporting Requirements. Systems shall report the following information to the department to demonstrate compliance with the requirements of 10 CSR 60-15.050:

(5)(A) Not later than twelve (12) months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in 10 CSR 60-15.050(1), the system must submit written documentation to the department of the material evaluation conducted as required in 10 CSR 60-15.070(1), identify the initial number of lead service lines in its distribution system at the time the system exceeds the lead action level, and provide the department with the system's schedule for replacing annually at least seven percent (7%) of the initial number of lead service lines in its distribution system;

(5)(B) Not later than twelve (12) months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in 10 CSR 60-15.050(1), and every twelve (12) months after that, the system shall demonstrate to the department in writing that the system has either--

(5)(B)1. 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 10 CSR 60-15.050(5)) in its distribution system; or

(5)(B)2. Conducted sampling which demonstrates that the lead concentration in all service line samples from an individual line(s), taken pursuant to 10 CSR 60-15.070(2)(C), is less than or equal to 0.015 milligrams per liter (mg/L). In those cases, the total number of lines replaced or which meet the criteria in 10 CSR 60-15.050(2), or both, shall equal at least seven percent (7%) of the initial number of lead lines identified under subsection (5)(A) of this rule (or the percentage specified by the department under 10 CSR 60-15.050(5));

(5)(C) The annual letter submitted to the department under subsection (5)(B) of this rule shall contain the following information:

(5)(C)1. The number of lead service lines scheduled to be replaced during the previous year of the system's replacement schedule. The total number of lines replaced and/or which meet the criteria in 10 CSR 60-15.050(3) shall equal at least seven percent (7%) of the initial number of lead lines identified under subsection (5)(A) of this rule or the percentage specified by the department under 10 CSR 60-15.050(5); and

(5)(C)2. The number and location of each lead service line replaced during the previous year of the system's replacement schedule; and

(5)(C)3. If measured, the water lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling; and

(5)(D) Any system which collects lead service line samples following partial lead service line replacement required by <u>10 CSR 60-15.050</u> shall report the results and any additional information as specified by the department to the department in a time and manner prescribed by the department, to verify that all partial lead service line replacement activities have taken place.

(6) Public Education Program Reporting Requirements.

(6)(A) Any water system that is subject to the public education requirements in 10 CSR 60-15.060 shall, within ten (10) days after the end of each period in which the system is required to perform public education tasks in accordance with 10 CSR 60-15.060(2), submit written documentation to the department that contains--

(6)(A)1. A demonstration that the system has delivered the public education materials that meet the content requirements in 10 CSR 60-15.060(1) and the delivery requirements in 10 CSR 60-15.060(2); and

(6)(A)2. A list of all the newspapers, radio stations, television stations, 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.

(6)(B) Unless required by the department, a system that previously has submitted the information required by paragraph (6)(A)2. of this rule need not resubmit that information as long as there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list submitted previously.

(6)(C) No later than three (3) months following the end of the monitoring period, each system must mail a sample copy of the consumer notification of tap results to the department along with a certification that the notification has been distributed in a manner consistent with the requirements of 10 CSR 60-15.060(4).

(7) Reporting of Additional Monitoring Data. Any system which collects sampling data in addition to that required by this rule shall report the results to the department within the first ten (10) days following the end of the applicable monitoring period under 10 CSR 60-15.070, 10 CSR 60-15.080 and 10 CSR 60-15.090 during which the samples are collected.

(8) Reporting of ninetieth percentile lead and copper concentrations where the department calculates a system's ninetieth percentile concentrations. A water system is not required to report the ninetieth percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period, as required by paragraph (1)(A)3. of this rule if:

(8)(A) The department has previously notified the water system that it will calculate the water system's ninetieth percentile lead and copper concentrations, based on the lead and copper tap results submitted pursuant to paragraph (8)(B)1. of this rule, and has specified a date before the end of the applicable monitoring period by which the system must provide the results of lead and copper tap water samples;

(8)(B) The system has provided the following information to the department by the date specified in subsection (8)(A) of this rule:

(8)(B)1. The results of all tap samples for lead and copper including the location of each site and the criteria under 10 CSR 60-15.070(1)(C), (D), (E), (F), and/or (G) under which the site was selected for the system's sampling pool, pursuant to paragraph (1)(A)1. of this rule; and

(8)(B)2. An identification of sampling sites utilized during the current monitoring period that were not sampled during previous monitoring periods, and an explanation why sampling sites have changed; and

(8)(C) The department has provided the results of the ninetieth percentile lead and copper calculations, in writing, to the water system before the end of the monitoring period.

10 CSR 60-8 Chapter 8--Public Notification

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Appendix C

10 CSR 60-8.010 Public Notification Of Conditions Affecting A Public Water Supply

PURPOSE: This rule establishes the timing, content, method, and other requirements for notifying the public of violations of the public drinking water rules, situations with potential to have adverse effects on human health, and grants of variances and exemptions. Public notice requirements are divided into three (3) tiers, to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved. The public notice requirements for each violation or situation are determined by the tier to which it is assigned.

(1) General Information and Requirements.

(1)(A) Types of Violations and Other Situations Requiring Public Notice.

(1)(A)1. Failure to comply with an applicable maximum contaminant level (MCL) or maximum residual disinfectant levels (MRDL).

(1)(A)2. Failure to comply with a prescribed treatment technique.

(1)(A)3. Failure to perform required water quality monitoring as required by drinking water regulations.

(1)(A)4. Failure to comply with testing procedures as prescribed by a drinking water regulation.

(1)(A)5. Operation under a variance or an exemption.

(1)(A)6. Failure to comply with the requirements of any schedule that has been set under a variance or exemption.

(1)(A)7. Special public notice.

(1)(A)8. Occurrence of a waterborne disease outbreak or other waterborne emergency.

(1)(A)9. Exceedance of the nitrate MCL by noncommunity water systems where granted permission by the department;

(1)(A)10. Exceedance of the secondary maximum contaminant level (SMCL) for fluoride.

(1)(A)11. Availability of unregulated contaminant monitoring data.

(1)(A)12. Other violations and situations determined by the department to require a public notice.

(1)(B) Type of Notice Required for Each Violation or Situation. Public notice requirements are divided into three (3) tiers, to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved. The three (3) tiers are described and specific requirements are set forth in sections (2)-(4) of this rule. The public notice requirements for each violation or situation are determined by the tier to which it is assigned.

(1)(C) Persons Notified and Responsibility for Public Notice.

(1)(C)1. The owner or operator of the public water system shall provide public notice to persons served by the water system in accordance with this rule. Public water systems that sell or otherwise provide drinking water to other public water systems (that is, to consecutive systems) are required to give public notice to the owner or operator of the consecutive system. The consecutive system is responsible for providing public notice to the persons it serves.

(1)(C)2. If the public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the department may allow the system to limit distribution of the public notice to only persons served by that portion of the system which is out of compliance. The department's approval will be in writing.

(1)(C)3. A copy of the public notice shall be sent to the department within ten (10) days of completion of notifying the affected public.

(2) Tier 1 Public Notice.

(2)(A) Violation Categories and Other Situations Requiring a Tier 1 Public Notice.

(2)(A)1. Tier 1 public notice is required for violations or other situations with significant potential to have serious adverse effects on human health as a result of short-term exposure.

(2)(A)2. Specific violations and other situations requiring Tier 1 notice include:

(2)(A)2.A. Violation of the MCL for total coliforms when fecal coliform or *E. coli* are present in the water distribution system, or when the water system fails to test for fecal coliforms or *E. coli* when any repeat sample tests positive for coliform;

(2)(A)2.B. Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, or when the water system fails to take a confirmation sample within twenty-four (24) hours of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL;

(2)(A)2.C. Exceedance of the nitrate MCL by non-community water systems where permitted by the department to exceed the MCL;

(2)(A)2.D. Violation of the MRDL for chlorine dioxide, when one (1) or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system, exceed the MRDL, or when the water system does not take the required samples in the distribution system;

(2)(A)2.E. Violation of the maximum turbidity level where the sample results exceed five (5) nephelometric turbidity units (NTU);

(2)(A)2.F. Violation of a treatment technique requirement pursuant to 10 CSR 60-4.050 resulting from a single exceedance of the maximum allowable turbidity limit, where the department determines after consultation that the violation has significant potential to have serious adverse effects on human health or where the system fails to consult with the department within twenty-four (24) hours after the system learns of the violation;

(2)(A)2.G. Occurrence of a waterborne disease outbreak or other waterborne emergency (such as failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination);

(2)(A)2.H. Detection of *E. coli*, entercocci, or coliphage in source water samples as specified in 10 CSR 60-4.025(3)(A) and 10 CSR 60-4.025(3)(B); and

(2)(A)2.I. Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the department either in regulation or on a case-by-case basis.

(2)(B) Timing of Tier 1 Public Notice. The public water system owner or operator shall:

(2)(B)1. Provide public notice as soon as practical but no later than twenty-four (24) hours after the system learns of the violation or situation;

(2)(B)2. Initiate consultation with the department to determine any additional public notice requirements as soon as practical, but no later than twenty-four (24) hours after the public water system learns of the violation or situation, except that the department may allow additional time in the event of extenuating circumstances beyond the control of the public water system, such as a natural disaster; and

(2)(B)3. Comply with any additional public notification requirements (including any repeat notices or direction on the duration of the posted notices) that are established as a result of the consultation with the department. Such requirements may include the time, form, manner, frequency, and content of repeat notice (if any) and other actions designed to reach all persons served.

(2)(C) Form and Manner of Tier 1 Public Notice.

(2)(C)1. The owner or operator of the public water system shall use the health effects language in section (11) of this rule for MCL violations requiring Tier 1 public notice.

(2)(C)2. Tier 1 public notice shall be provided within twenty-four (24) hours in a form and manner reasonably calculated to reach all persons served. The form and manner used by the

public water system are to fit the specific situation, but shall be designed to reach residential, transient, and non-transient users of the water system. In order to reach all persons served, water system shall use, at a minimum, one (1) or more of the following forms of delivery:

(2)(C)2.A. Appropriate broadcast media, such as radio and television;

(2)(C)2.B. Posting the notice in conspicuous locations throughout the area served by the water system;

(2)(C)2.C. Hand delivery of the notice to persons served by the water system; or

(2)(C)2.D. Another delivery method ap-proved in writing by the department.

(3) Tier 2 Public Notice.

(3)(A) Violation Categories and Other Situations Requiring a Tier 2 Public Notice.

(3)(A)1. Tier 2 public notice is required for violations and other situations with potential to have serious adverse effects on human health.

(3)(A)2. Specific violations and other situations requiring Tier 2 notice.

(3)(A)2.A. Tier 2 notice is required for violations of MCL, MRDL, or treatment technique requirements, except where a Tier 1 notice is required or where the department determines that a Tier 1 notice is required, for the following: microbiological contaminants; inorganic contaminants (IOCs); synthetic organic contaminants (SOCs); volatile organic contaminants (VOCs); radiological contaminants; disinfection byproducts, byproduct precursors, and disinfectant residuals; treatment techniques for acrylamide, epichlorohydrin, lead, and copper; and other situations determined by the department to require Tier 2 notice. Systems with treatment technique violations involving a single exceedance of a maximum turbidity limit under 10 CSR 60-4.050 must initiate consultation with the department within twenty-four (24) hours of learning of the violation. Based on this consultation the department may subsequently decide to elevate the violation to Tier 1. If a system is unable to make contact with the department in the twenty-four (24)-hour period, the violation is automatically elevated to Tier 1.

(3)(A)2.B. Failure to comply with the terms and conditions of a variance or exemption.

(3)(A)2.C. Violations of the monitoring and testing procedure requirements where the department determines that a Tier 2 rather than a Tier 3 public notice is required, taking into account potential health impacts and persistence of the violation. This includes but is not limited to collecting no total coliform samples during the applicable monitoring period at the discretion of the department.

(3)(A)2.D. Failure to take corrective action or failure to maintain at least 4-log treatment of viruses (using inactivation, removal, or a department-approved combination of 4-log virus inactivation and removal) before or at the first customer under 10 CSR 60-4.025(4)(A).

(**3**)(B) Timing of Tier 2 Public Notice.

(3)(B)1. Public water systems must provide the public notice as soon as possible, but not later than thirty (30) days after the system learns of the violation. If the public notice is posted, the notice must remain in place for as long as the violation or situation persists, but in no case for less than seven (7) days, even if the violation or situation is resolved. The department may, in appropriate circumstances, allow additional time for the initial notice of up to three (3) months from the date the system learns of the violation. The department will not grant an extension to the thirty (30)-day deadline for any unresolved violation or provide across-the-board extensions for other violations or situations requiring a Tier 2 public notice. Extensions granted by the department will be in writing.

(3)(B)2. The public water system must repeat the notice every three (3) months as long as the violation or situation persists, unless the department determines that appropriate circumstances warrant a different repeat notice frequency. In no circumstance may the repeat notice be given less frequently than once per year. The department will not allow less frequent repeat notice for an MCL violation pursuant to 10 CSR 60-4.020 or a treatment technique violation pursuant to 10 CSR 60-4.050. The department will not allow across-the-board reductions in the repeat notice frequency for other ongoing violations requiring a Tier 2 repeat notice. The department's determinations allowing repeat notices to be given less frequently than once every three (3) months will be in writing.

(3)(B)3. For violations of the maximum turbidity level and for violations of the treatment technique requirements pursuant to 10 CSR 60-4.050 resulting from a single exceedance of the maximum allowable turbidity limit, public water systems must consult with the department as soon as practical but no later than twenty-four (24) hours after the public water system learns of the violation to determine whether a Tier 1 public notice is required to protect public health. When consultation does not take place within the twenty-four (24)-hour period, the water system must distribute a Tier 1 notice of the violation within the next twenty-four (24) hours (that is, no later than forty-eight (48) hours after the system learns of the violation).

(3)(C) Form and Manner of Tier 2 Public Notice. Public water systems must provide the initial public notice and any repeat notices in a form and manner reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system but must at a minimum meet the following requirements:

(3)(C)1. Unless directed otherwise by the department in writing, community water systems must provide notice by:

(3)(C)1.A. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

(3)(C)1.B. Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by mail or direct delivery. Such persons may include those who do not pay water bills or do not have service connection addresses (for

example, house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). These other methods may include: Publication in a local newspaper or newsletter; delivery of multiple copies for distribution by customers that provide their drinking water to others; posting in public places served by the system or on the Internet; or delivery to community organizations.

(3)(C)2. Unless directed otherwise by the department in writing, non-community water systems must provide notice by:

(3)(C)2.A. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

(3)(C)2.B. Any other method reasonably calculated to reach other persons served by the system if they would not normally be reached by posting in a conspicuous location, mail, or direct delivery. Such persons include those served who may not see a posted notice because the posted notice is not in a location they routinely pass by. These other methods may include: Publication in a local newspaper or newsletter distributed to customers; use of e-mail to notify employees or students; or delivery of multiple copies in central locations (for example, community centers).

(4) Tier 3 Public Notice.

(4)(A) Violation Categories and Other Situations Requiring a Tier 3 Public Notice.

(4)(A)1. Tier 3 public notice is required for all other violations and situations not included in Tier 1 and Tier 2.

(4)(A)2. Specific violations and other situations requiring Tier 3 public notice include:

(4)(A)2.A. Monitoring violations or failure to comply with a testing procedure, except where a Tier 1 notice is specifically required or where the department determines that a Tier 2 notice is required, for the following: microbiological contaminants; inorganic contaminants (IOCs); synthetic organic contaminants (SOCs); volatile organic contaminants (VOCs); radiological contaminants; disinfection byproducts, byproduct precursors, and disinfectant residuals; treatment techniques for lead, and copper. Specific exceptions are listed under sections (2) and (3) of this rule;

(4)(A)2.B. Operation under a variance or exemption;

(4)(A)2.C. Exceedance of the fluoride SMCL; and

(4)(A)2.D. Other violations or situations determined by the department either in regulation or on a case-by-case basis.

(4)(B) Timing of Tier 3 Public Notice.

(4)(B)1. Public water systems must provide the public notice not later than one (1) year after the public water system learns of the violation or situation or begins operating under a variance or exemption. Following the initial notice, the public water system must repeat the notice annually for as long as the violation, variance, exemption, or other situation persists. If the public notice is posted, the notice must remain in place for as long as the violation, variance or exemption persists, but in no case less than seven (7) days (even if the violation or situation is resolved).

(4)(B)2. Instead of individual Tier 3 public notices, a public water system may use an annual report detailing all violations and situations that occurred during the previous twelve (12) months as long as the timing requirements of paragraph (4)(B)1. of this rule are met.

(4)(C) Form and Manner of Tier 3 Public Notice. Public water systems must provide the initial notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system, but it must at a minimum meet the following requirements:

(4)(C)1. Unless directed otherwise by the department in writing, community water systems must provide notice by:

(4)(C)1.A. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

(4)(C)1.B. Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by mail or other direct delivery. Such persons may include those who do not pay water bills or do not have service connection addresses (for example, house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). Other methods may include: Publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (for example, apartment building owners or large private employers); posting in public places or on the Internet; or delivery to community organizations.

(4)(C)2. Unless directed otherwise by the department in writing, noncommunity water system must provide notice by:

(4)(C)2.A. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

(4)(C)2.B. Any other method reasonably calculated to reach other persons served by the system, if they would not normally be reached by posting, mail, or direct delivery. Such persons may include those who may not see a posted notice because the notice is not in a location they routinely pass by. Other methods may include: Publication in a local newspaper or newsletter distributed to customer; use of e-mail to notify employees or students; or, delivery of multiple copies in central location (for example, community center).

(4)(D) Use of Consumer Confidence Report to Meet Tier 3 Requirement. The Consumer Confidence Report (CCR) may be used for the Tier 3 public notice as long as:

(4)(D)1. The CCR is provided to persons served no later than twelve (12) months after the system learns of the violation or situation.

(4)(D)2. The Tier 3 notice contained in the CCR follows the content requirements under section (5) of this rule; and

(4)(D)3. The CCR is distributed following the delivery requirements under subsection (4)(C) of this rule.

(5) Content of the Public Notice.

(5)(A) Public Notice for Violations and Other Situations, Including Violation of a Condition of a Variance or Exemption. The public notice must include:

(5)(A)1. A description of the violation or situation, including the contaminant(s) of concern, and (as applicable) the contaminant level(s);

(5)(A)2. When the violation or situation occurred;

(5)(A)3. Any potential adverse health effects from the violation or situation including the standard language under paragraph (5)(D)1 or (5)(D)2 of this rule, whichever is applicable;

(5)(A)4. The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water;

(5)(A)5. Whether alternative water supplies should be used;

(5)(A)6. What actions consumers should take, including when they should seek medical help, if known;

(5)(A)7. What the system is doing to correct the violation or situation;

(5)(A)8. When the water system expects to return to compliance or resolve the situation;

(5)(A)9. The name, business address, and phone number of the water system owner, operator, or designee of the public water system as a source of additional information concerning the notice; and

(5)(A)10. A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under paragraph (5)(D)3. of this rule, where applicable.

(5)(B) Public Notice for Variances and Exemptions. If a public water system has been granted a variance or an exemption, the public notice must contain:

(5)(B)1. An explanation of the reasons for the variance or exemption;

(5)(B)2. The date on which the variance or exemption was issued.

(5)(B)3. A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption; and

(5)(B)4. A notice of any opportunity for the public input in the review of the variance or exemption.

(5)(C) Presentation of the Public Notice.

(5)(C)1. Each public notice:

(5)(C)1.A. Must be displayed in a conspicuous way when printed or posted;

(5)(C)1.B. Must not contain overly technical language or very small print;

(5)(C)1.C. Must not be formatted in a way that defeats the purpose of the notice;

(5)(C)1.D. Must not contain language which nullifies the purpose of the notice.

(5)(C)2. Each public notice must comply with multilingual requirements.

(5)(C)2.A. Where the department has determined the public water system serves a large proportion of non-English speaking consumers, the public notice must contain information in the appropriate language(s) 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 language.

(5)(C)2.B. Where the department has not made a determination regarding the proportion of non-English speaking consumers, the public notice must contain the same information as in subparagraph (5)(C)2.A. of this rule.

(5)(C)2.C. Where the department has determined there is not a large proportion of non-English speaking customers, no multilingual requirement applies.

(5)(D) Standard Language Included in the Notice. Public water system owners and operators are required to include the following standard language in their public notice:

(5)(D)1. For MCL, MRDL, and treatment technique violations, and violation of the condition of a variance or exemption, the public notice must include the health effects language specified in section (11) of this rule corresponding to the violation.

(5)(D)2. Public water systems must include the following language in their notice, including the language necessary to fill in the blanks, for all monitoring and testing procedure violations requiring public notice: "We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During {compliance period}, we {"did not monitor or test"} or {"did not complete all monitoring or testing"} for {contaminants(s)} and therefore cannot be sure of the quality of your drinking water during that time."

(5)(D)3. Public water systems must include the following language in their notice (where applicable) to encourage the distribution of the public notice to all persons served: "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."

(6) Notice to New Billing Units or Custom-ers.

(6)(A) Community Water Systems. Community water systems must give a copy of the most recent public notice for any continuing violation, the existence of a variance or exemption, or other ongoing situations requiring a public notice to all new billing units or new customers prior to or at the time service begins.

(6)(B) Non-Community Water Systems. Non-community water systems must continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation, variance or exemption, or other situation requiring a public notice for as long as the violation, variance, exemption, or other situation persists.

(7) Reserved.

- (8) Reserved.
- (9) Special Public Notices.

(9)(A) Special Notice for the Availability of Unregulated Contaminant Monitoring Results.

(9)(A)1. Timing of the special notice. The owner or operator of a community water system or nontransient noncommunity water system required to monitor for unregulated contaminants under Environmental Protection Agency's (EPA's) Unregulated Contaminant Monitoring Rule must notify persons served by the system of the availability of the results of such sampling no later than twelve (12) months after the monitoring results are known.

(9)(A)2. Form and manner of special notice. The form and manner of the public notice shall follow the requirements for a Tier 3 public notice. The notice shall also identify a person and provide the telephone number to contact for information on the monitoring results.

(9)(B) Special Notice for the Exceedance of the Secondary Maximum Contaminant Level (SMCL) for Fluoride.

(9)(B)1. Timing of the special notice. Community water systems that exceed the fluoride SMCL of 2 mg/L determined by the last single sample taken in accordance with 10 CSR 60-4.030, but do not exceed the MCL of 4 mg/L for fluoride, must provide the public notice in paragraph (9)(B)3. of this rule to persons served. Public notice must be provided as soon as practical, but no later than twelve (12) months from the day the water system learns of the exceedance. A copy of the notice must also be provided to all new billing units and customers at the time service begins and to the state public health officer. The public water system must repeat the notice at least annually for as long as the SMCL is exceeded. If the public notice is posted, the notice must remain in place for as long as the SMCL is exceeded, but in no case less than seven (7) days (even if the exceedance is eliminated). On a case-by-case basis, the department may require an initial notice sooner than twelve (12) months and repeat notices more frequently than annually.

(9)(B)2. Form and manner of the special notice. The form and manner of the public notice (including repeat notices) must follow the requirements for a Tier 3 public notice in subsection (4)(C) and paragraphs (4)(D)1 and (4)(D)3 of this rule.

(9)(B)3. Mandatory language. The notice must contain the following language, including language necessary to fill in the blanks:

"This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine (9) years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than two (2) milligrams per liter (mg/L) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system {name} has a fluoride concentration of {insert value} mg/L.

"Dental fluorosis, in its moderate or severe forms, may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine (9) should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.

"Drinking water containing more than four (4) mg/L of fluoride (the maximum contaminant level for fluoride) can increase your risk of developing bone disease. Your drinking water does not contain more than four (4) mg/L of fluoride, but we are required to notify you when we discover that the fluoride levels in your drinking water exceed two (2) mg/L because of this cosmetic dental problem.

"For more information, please call {name of community water system} at {phone number}. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP."

(9)(C) Special Notice for Nitrate Exceedances Above the MCL by Noncommunity Water Systems.

(9)(C)1. The owner or operator of a noncommunity water system granted permission by the department to exceed the nitrate MCL shall provide notice to persons served according to the requirements for a Tier 1 notice.

(9)(C)2. The owner or operator shall provide continuous posting of the fact that nitrate levels exceed ten (10) mg/L and the potential health effects of exposure, according to the requirements for Tier 1 notice delivery under section (2) and the content requirements under section (5) of this rule.

(9)(D) Special notice for repeated failure to conduct monitoring of the source water for *Cryptosporidium* and for failure to determine bin classification or mean *Cryptosporidium* level.

(9)(D)1. The owner or operator of a community or noncommunity water system that is required to monitor source water under 10 CSR 60-4.052(2) must notify persons served by the water system that monitoring has not been completed as specified no later than thirty (30) days after the system has failed to collect any three (3) months of monitoring as specified in 10 CSR 60-4.052(2)(C). The notice must be repeated as specified in 10 CSR 60-8.010(3).

(9)(D)2. Special notice for failure to determine bin classification or mean *Cryptosporidium* level. The owner or operator of a community or noncommunity water system that is required to determine a bin classification under <u>10 CSR 60-4.052(10)</u> must notify persons served by the water system that the determination has not been made as required no later than thirty (30) days after the system has failed to report the determination as specified in <u>10 CSR 60-4.052(10)(E)</u>. The notice must be repeated as specified in <u>10 CSR 60-8.010(3)</u>. The notice is not required if the system is complying with a department-approved schedule to address the violation.

(9)(D)3. Form and manner of the special notice. The form and manner of the public notice must follow the requirements for a Tier 2 public notice prescribed in subsection (3)(C) of this rule. The public notice must be presented as required in section (3) of this rule.

(9)(D)4. Mandatory language that must be contained in the special notice. The notice must contain the following language, including the language necessary to fill in the blanks.

(9)(D)4.A. The special notice for repeated failure to conduct monitoring must contain the following language:

"We are required to monitor the source of your drinking water for *Cryptosporidium*. Results of the monitoring are to be used to determine whether water treatment at the {treatment plant

name} is sufficient to adequately remove *Cryptosporidium* from your drinking water. We are required to complete this monitoring and make this determination by {required bin determination date}. We did not monitor or test or did not complete all monitoring or testing on schedule and, therefore, we may not be able to determine by the required date what treatment modifications, if any, must be made to ensure adequate *Cryptosporidium* removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed by the deadline required, {date}. For more information, please call {name of water system contact} of {name of water system} at {phone number}."

(9)(D)4.B. The special notice for failure to determine bin classification or mean *Cryptosporidium* level must contain the following language:

"We are required to monitor the source of your drinking water for *Cryptosporidium* in order to determine by {date} whether water treatment at the {treatment plant name} is sufficient to adequately remove *Cryptosporidium* from your drinking water. We have not made this determination by the required date. Our failure to do this may jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of {date}. For more information, please call {name of water system contact} of {name of water system} at {phone number}."

(9)(D)4.C. Each special notice must also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

(10) Notice Given by the Department on Behalf of the Public Water System.

(10)(A) The department may give the notice required by this rule on behalf of the owner and operator of the public water system.

(10)(B) The owner or operator of the public water system remains responsible for ensuring that the requirements of this rule are met.

(11) Standard Health Effects Language for Public Notification.

(11)(A) Microbiological Contaminants.

(11)(A)1. Total coliform. "Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems."

(11)(A)2. Fecal coliform/*E. coli*. "Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems."

(11)(A)3. Fecal indicators under the Ground Water Rule (*E. coli*, enterococci, coliphage). "Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems."

(11)(A)4. Treatment technique violations under the Ground Water Rule. "Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches."

(11)(A)5. Turbidity. "Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

(11)(B) Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), Long-Term 1 Enhanced Surface Water Treatment Rule, and Filter Backwash Recycling Rule (FBRR) Violations.

(11)(B)1. *Giardia lamblia*. "Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

(11)(B)2. Viruses. "Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

(11)(B)3. Heterotrophic plate count (HPC) bacteria. "Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

(11)(B)4. Legionella. "Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

(11)(B)5. *Cryptosporidium*. "Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

(11)(C) Inorganic Chemicals (IOCs).

(11)(C)1. Antimony. "Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar."

(11)(C)2. Arsenic. "Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer."

(11)(C)3. Asbestos (>10 μ m). "Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps."

(11)(C)4. Barium. "Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure."

(11)(C)5. Beryllium. "Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions."

(11)(C)6. Cadmium. "Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage."

(11)(C)7. Chromium (total). "Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis."

(11)(C)8. Cyanide. "Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid."

(11)(C)9. Fluoride. "Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth, before they erupt from the gums."

(11)(C)10. Mercury (inorganic). "Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage."

(11)(C)11. Nitrate. "Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome."

(11)(C)12. Nitrite. "Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome."

(11)(C)13. Total Nitrate and Nitrite. "Infants below the age of six months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome."

(11)(C)14. Selenium. "Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation."

(11)(C)15. Thallium. "Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver."

(11)(D) Lead and Copper Rule.

(11)(D)1. Lead. "Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure."

(11)(D)2. Copper. "Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor."

(11)(E) Synthetic Organic Chemicals (SOCs).

(11)(E)1. 25. 2,4-D. "Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands."

(11)(E)2. 26. 2,4,5-TP (Silvex). "Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems."

(11)(E)3. Alachlor. "Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer."

(11)(E)4. Atrazine. "Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties."

(11)(E)5. Benzo(a)pyrene (PAHs). "Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer."

(11)(E)6. Carbofuran. "Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems."

(11)(E)7. Chlordane. "Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver, or nervous system, and may have an increased risk of getting cancer."

(11)(E)8. Dalapon. "Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes."

(11)(E)9. Di(2-ethylhexyl)adipate. "Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience general toxic effects or reproductive difficulties."

(11)(E)10. Di(2-ethylhexyl)phthalate. "Some people who drink water containing di (2-ethylhexyl) phthalate in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer."

(11)(E)11. Dibromochloropropane (DBCP). "Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer."

(11)(E)12. Dinoseb. "Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties."

(11)(E)13. Dioxin (2,3,7,8-TCDD). "Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer."

(11)(E)14. Diquat. "Some people who drink water containing diquat in excess of the MCL over many years could get cataracts."

(11)(E)15. Endothall. "Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines."

(11)(E)16. Endrin. "Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems."

(11)(E)17. Ethylene dibromide. "Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer."

(11)(E)18. Glyphosate. "Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties."

(11)(E)19. Heptachlor. "Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer."

(11)(E)20. Heptachlor epoxide. "Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer."

(11)(E)21. Hexachlorobenzene. "Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer."

(11)(E)22. Hexachlorocyclopentadiene. "Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach."

(11)(E)23. Lindane. "Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver."

(11)(E)24. Methoxychlor. "Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties."

(11)(E)25. Oxamyl (Vydate). "Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects."

(11)(E)26. Pentachlorophenol. "Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer."

(11)(E)27. Picloram. "Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver."

(11)(E)28. Polychlorinated biphenyls (PCBs). "Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer."

(11)(E)29. Simazine. "Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood."

(11)(E)30. Toxaphene. "Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer."

(11)(F) Volatile Organic Chemicals (VOCs).

(11)(F)1. Benzene. "Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer."

(11)(F)2. Carbon tetrachloride. "Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer."

(11)(F)3. Chlorobenzene (monochlorobenzene). "Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.

(11)(F)4. o-Dichlorobenzene. "Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems."

(11)(F)5. p-Dichlorobenzene. "Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood."

(11)(F)6. 1,2-Dichloroethane. "Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer."

(11)(F)7. 1,1-Dichloroethylene. "Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver."

(11)(F)8. cis-1,2-Dichloroethylene. "Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver."

(11)(F)9. trans-1,2-Dichloroethylene. "Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver."

(11)(F)10. Dichloromethane. "Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer."

(11)(F)11. 1,2-Dichloropropane. "Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer."

(11)(F)12. Ethylbenzene. "Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys."

(11)(F)13. Styrene. "Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system."

(11)(F)14. Tetrachloroethylene. "Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer."
(11)(F)15. Toluene. "Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver."

(11)(F)16. 1,2,4-Trichlorobenzene. "Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands."

(11)(F)17. 1,1,1-Trichloroethane. "Some people who drink water containing 1,1,1trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system."

(11)(F)18. 1,1,2-Trichloroethane. "Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems."

(11)(F)18. Trichloroethylene. "Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer."

(11)(F)19. Vinyl chloride. "Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer."

(11)(F)20. Xylenes (total). "Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system."

(11)(G) Radioactive Contaminants.

(11)(G)1. Beta/photon emitters. "Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer."

(11)(G)2. Alpha emitters (Gross alpha). "Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer."

(11)(G)3. Combined radium (226 & 228). "Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer."

(11)(G)4. Uranium. "Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity."

(11)(H) Disinfection Byproducts, Byproduct Precursors, and Disinfectant Residuals.

(11)(H)1. Total trihalomethanes (TTHMs). "Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer."

(11)(H)2. Haloacetic Acids (HAA). "Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer."

(11)(H)3. Bromate. "Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer."

(11)(H)4. Chlorite. "Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia."

(11)(H)5. Chlorine. "Some people who use drinking water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort."

(11)(H)6. Chloramines. "Some people who use drinking water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia."

(11)(H)7. Chlorine dioxide.

(11)(H)7.A. Where any two (2) consecutive daily samples taken at the entrance to the distribution system are above the MRDL. "Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system which delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers."

(11)(H)7.B. Where one (1) or more distribution system samples are above the MRDL. "Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. The chlorine dioxide violations reported today include exceedances of the EPA standard within the distribution system which delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure."

(11)(H)8. DBP precursors (TOC). "Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer."

(11)(H)(I) Other Treatment Techniques.

(11)(H)(I)1. Acrylamide. "Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer."

(11)(H)(I)2. Epichlorohydrin. "Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer."

10 CSR 60-8.030 Consumer Confidence Reports

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

(1) Applicability, Definitions, and General Requirements.

(1)(A) This rule applies only to community water systems.

(1)(B) The definitions in 10 CSR 60-2.015 apply to this rule with the following exceptions:

(1)(B)1. For the purpose of this rule, customers are defined as billing units or service connections to which water is delivered by a community water system; and

(1)(B)2. For the purpose of this rule, detected means at or above the levels prescribed by 10 CSR <u>60-5.010(8)</u> for organic, inorganic, and radioactive contaminants and disinfection by-products.

(1)(C) Each existing community water system must deliver its report to customers by July 1 annually. The report must contain data collected during, or prior to, the previous calendar year as prescribed in paragraph (2)(D)3. of this rule.

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

(1)(E) A community water system that sells water to another community water system must deliver to the purchasing water system the information required in subsection (2)(B), and any information required in subsections (2)(D) through (2)(G) of this rule for monitoring conducted

at the source or entrypoint to the distribution system. The required information from the seller must be provided no later than April 1 annually or on a date mutually agreed upon by the seller and the purchaser that is documented in writing and signed by both parties.

(2) Content of the Reports.

(2)(A) Each community water system must provide to its customers an annual report that contains the information specified in section (2) and section (3) of this rule.

(2)(B) Information on the source of the water delivered--

(2)(B)1. Each report must identify the source(s) of the water delivered by the community water system by providing information on--

(2)(B)1.A. The type of the water: e.g., surface water, ground water;

(2)(B)1.B. The commonly used name (if any) and location of the body (or bodies) of water; and

(2)(B)1.C. If a source water assessment has been completed, the report must notify consumers of the availability of this information and the means to obtain it, and also include a brief summary of the system's susceptibility to potential sources of contamination, using language provided in the source water assessment or written by the operator. If no source water assessment has been completed, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information.

(**2**)(**B**)2. *Reserved*

(2)(C) Definitions.

(2)(C)1. Each report must include the following definitions:

(2)(C)1.A. Maximum contaminant level goal or MCLG--The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety; and

(2)(C)1.B. Maximum contaminant level or MCL--The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

(2)(C)2. A report for a community water system operating under a variance or an exemption issued under 10 CSR 60-6.010 or 10 CSR 60-6.020 must include the following definition--Variances and exemptions-State permission not to meet an MCL or a treatment technique under certain conditions.

(2)(C)3. A report that contains data on a contaminant that the department regulates using the following terms must use the following definitions as applicable:

(2)(C)3.A. Treatment technique--A required process intended to reduce the level of a contaminant in drinking water;

(2)(C)3.B. Action level--The concentration of a contaminant which, if exceeded, triggers treatment or other requirements with which a water system must comply;

(2)(C)3.C. Maximum residual disinfectant level goal or MRDLG--The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants; and

(2)(C)3.D. Maximum residual disinfectant level or MRDL--The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

(2)(D) Information on Detected Contaminants.

(2)(D)1. Subsection (2)(D) specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring (except *Cryptosporidium*). It applies to-

(2)(D)1.A. Contaminants subject to an MCL, action level, maximum residual disinfectant level, or treatment technique (regulated contaminants);

(2)(D)1.B. Contaminants for which monitoring is required by <u>10 CSR 60-4.110</u> (unregulated contaminants); and

(2)(D)1.C. Disinfection by-products or microbial contaminants for which monitoring is required by $\frac{40 \text{ CFR } 141.142}{2}$ and $\frac{141.143}{2}$, except as provided under paragraph (2)(E)1. of this rule, and which are detected in the finished water.

(2)(D)2. The data relating to these contaminants must be displayed in one (1) table or in several adjacent tables. Any additional monitoring results which a community water system chooses to include in its report must be displayed separately.

(2)(D)3. The data must be derived from data collected to comply with the Environmental Protection Agency and department monitoring and analytical requirements during the previous calendar year except that--

(2)(D)3.A. Where a system is allowed to monitor for regulated contaminants less often than once a year, the table(s) must include the date and results of the most recent sampling and the report must include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. The system may use the following language or similar language for their statement: "The state has reduced monitoring requirements for certain contaminants to less often than once per year because the concentrations of these contaminants are not expected to vary significantly from year-to-year. Some of our data (e.g., for

organic contaminants), though representative, is more than one (1) year old." No data older than five (5) years need be included.

(2)(D)3.B. Results of monitoring in compliance with 40 CFR 141.142 and 141.143 need only be included for five (5) years from the date of last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

(2)(D)4. For detected regulated contaminants (listed in Appendix A, included herein), the table(s) must contain--

(2)(D)4.A. The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in Appendix A, included herein);

(2)(D)4.B. The MCLG for that contaminant expressed in the same units as the MCL;

(2)(D)4.C. If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level applicable to that contaminant, and the report must include the definitions for treatment technique and/or action level, as appropriate, specified in paragraph (2)(C)3. of this rule;

(2)(D)4.D. For contaminants subject to an MCL, except turbidity and total coliforms, the highest contaminant level used to determine compliance with <u>10 CSR 60-4.030</u>; <u>10 CSR 60-4.040</u>; <u>10</u> <u>CSR 60-4.060</u>; <u>10 CSR 60-4.090</u>; <u>10 CSR 60-4.100</u> and the range of detected levels, as follows (when rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Appendix A, included herein):

(2)(D)4.D.(I) When compliance with the MCL is determined annually or less frequently--the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL;

(2)(D)4.D.(II) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a monitoring location--the highest average of any of the monitoring locations and the range of all monitoring locations expressed in the same units as the MCL. For the MCLs for total trihalomethanes (TTHM) and haloacetic acids 5 (HAA5) in <u>10</u> <u>CSR 60-4.090(1)(D)</u>, systems must include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If more than one (1) location exceeds the TTHM or HAA5 MCL, the system must include the locational running annual averages for all locations that exceed the MCL; and

(2)(D)4.D.(III) When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all samples at all monitoring locations--the average and range of detection expressed in the same units as the MCL. The system is required to include individual sample results for the Initial Distribution System Evaluation (IDSE) conducted under

<u>10 CSR 60-4.092</u> when determining the range of TTHM and HAA5 results to be reported in the annual consumer confidence report for the calendar year that the IDSE samples were taken;

(2)(D)4.E. For turbidity, the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in 10 CSR 60-4.050.

(2)(D)4.E.(I) The report should include an explanation of the reasons for measuring turbidity, such as: "Turbidity is a measure of the cloudiness of water. We monitor turbidity because it is a good indicator of the effectiveness of our filtration system."

(2)(D)4.E.(II) If an explanation of the reasons for measuring turbidity is included, it does not have to be included in the table but may be added as a footnote or narrative associated with the table;

(2)(D)4.F. For lead and copper, the ninetieth percentile value of the most recent round of sampling, the number of sampling sites exceeding the action level in that round, and the most recent source water results;

(2)(D)4.G. For total coliform.

(2)(D)4.G.(I) The highest monthly number of positive compliance samples for systems collecting fewer than forty (40) samples per month; or

(2)(D)4.G.(II) The highest monthly percentage of positive compliance samples for systems collecting at least forty (40) samples per month;

(2)(D)4.H. For fecal coliform or *E. coli*, the total number of positive compliance samples; and

(2)(D)4.I. The likely source(s) of detected regulated contaminants to the best of the operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the operator. If the operator lacks specific information on the likely source, the report must include one (1) or more of the typical sources for that contaminant which are most applicable to the system. The typical sources for a given contaminant are listed in Appendix B, included herein.

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

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

(2)(D)7. For detected unregulated contaminants for which monitoring is required (except *Cryptosporidium*), the table(s) must contain the average and range at which the contaminant was detected. When detects of unregulated contaminants are reported, the report may include a brief explanation of the reasons for monitoring for unregulated contaminants using language such as: "Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminants in drinking water and whether future regulation is warranted. Information on all the contaminants that were monitored for, whether regulated or unregulated, can be obtained from this water system or the Department of Natural Resources."

(2)(E) Information on *Cryptosporidium*, radon, and other contaminants.

(2)(E)1. If the system has performed any monitoring for *Cryptosporidium*, including monitoring performed to satisfy the requirements of 40 CFR 141.143, which indicates that *Cryptosporidium* may be present in the source water or the finished water, the report must include:

(2)(E)1.A. A summary of the results of the monitoring; and

(2)(E)1.B. An explanation of the significance of the results. The system may use the following language or similar language for the explanation: "*Cryptosporidium* is a microbial parasite which is found in surface water throughout the U.S. Although Cryptosporidium can be removed by filtration, the most commonly used filtration methods can not guarantee one hundred percent (100%) removal. Monitoring of our source water and/or finished water indicates the presence of these organisms. Current test methods do not enable us to determine if these organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals are able to overcome the disease within a few weeks. However, immuno-compromised people have more difficulty and are at greater risk of developing severe, life threatening illness. Immuno-compromised individuals are encouraged to consult their doctor regarding appropriate precautions to take to prevent infection. *Cryptosporidium* must be ingested for it to cause disease, and may be passed through other means than drinking water."

(2)(E)2. If the system has performed any monitoring for radon which indicates that radon may be present in the finished water, the report must include:

(2)(E)2.A. The results of the monitoring; and

(2)(E)2.B. An explanation of the significance of the results. The system may use the following language or similar language for the explanation: "Radon is a naturally occurring gas present in some ground water. It poses a lung cancer risk when the radon gas is released from water into air (as occurs during showering, bathing, or washing dishes or clothes), and a stomach cancer risk when you drink water containing radon. Radon gas released from drinking water is a relatively small part of the total radon in air. Other sources of radon gas are soils which enter homes through foundations, and radon inhaled directly while smoking cigarettes. Experts are not sure exactly what the cancer risk is from a given level of radon in your drinking water. If you are

concerned about radon in your home, test kits are available to determine the total exposure level."

(2)(E)3. If the system has performed additional monitoring which indicates the presence of other contaminants in the finished water, systems are encouraged to report any results which may indicate a health concern. To determine if results may indicate a health concern, the department recommends that systems find out if the Environmental Protection Agency has proposed a National Primary Drinking Water Regulation or issued a health advisory for that contaminant by calling the Safe Drinking Water Hotline (800-426-4791). Detects above a proposed MCL or health advisory level may indicate possible health concerns. For such contaminants, the department recommends that the report include:

(2)(E)3.A. The results of the monitoring; and

(2)(E)3.B. An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

(2)(F) Compliance with Department Regulations. In addition to the requirements of paragraph (2)(D)6, the report must note any violation that occurred during the year covered by the report of a requirement listed below, and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation.

(2)(F)1. Monitoring and reporting of compliance data.

(2)(F)2. Filtration and disinfection prescribed by 10 CSR 60-4.055. For systems which have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes which constitutes a violation, the report must include the following language as part of the explanation of potential adverse health effects: "Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

(2)(F)3. Lead and copper control requirements prescribed by $\underline{10 \text{ CSR } 60\text{-}15}$. For systems which fail to take one (1) or more actions prescribed by $\underline{10 \text{ CSR } 60\text{-}15.010(4)}$, $\underline{10 \text{ CSR } 60\text{-}15.020}$, $\underline{10}$ $\underline{\text{CSR } 60\text{-}15.030}$, $\underline{10 \text{ CSR } 60\text{-}15.040}$, or $\underline{10 \text{ CSR } 60\text{-}15.050}$, the report must include the applicable language of Appendix C to this rule for lead, copper, or both.

(2)(F)4. Treatment techniques for Acrylamide and Epichlorohydrin prescribed by 10 CSR 60-4.040(9). For systems which violate the requirements of 10 CSR 60-4.040(9), the report must include the relevant language from Appendix C to this rule.

(2)(F)5. Record keeping of compliance data.

(2)(F)6. Special monitoring requirements prescribed by <u>10 CSR 60-4.110</u>.

(2)(F)7. Violation of the terms of a variance, an exemption, or an administrative or judicial order.

(2)(G) Variances and Exemptions. If a system is operating under the terms of a variance or an exemption issued under 10 CSR 60-6.010 or 10 CSR 60-6.020, the report must contain--

(2)(G)1. An explanation of the reasons for the variance or exemption;

(2)(G)2. The date on which the variance or exemption was issued;

(2)(G)3. A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption; and

(2)(G)4. A notice of any opportunity for public input in the review, or renewal, of the variance or exemption.

(2)(H) Additional Information.

(2)(H)1. The report must contain a brief explanation regarding contaminants which may reasonably be expected to be found in drinking water, including bottled water. The report must include the language of subparagraph (2)(H)1.A. of this rule. This explanation must also include the information contained in subparagraphs (2)(H)1.B.-D. of this rule using this language or comparable language.

(2)(H)1.A. "Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791)."

(2)(H)1.B. "The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity."

(2)(H)1.C. "Contaminants that may be present in source water include:

(2)(H)1.C.(I) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

(2)(H)1.C.(II) Inorganic contaminants, such as salts and metals, which can be naturallyoccurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. (2)(H)1.C.(III) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

(2)(H)1.C.(IV) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

(2)(H)1.C.(V) Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities."

(2)(H)1.D. "In order to ensure that tap water is safe to drink, the Department of Natural Resources prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Department of Health and Senior Services regulations establish limits for contaminants in bottled water which must provide the same protection for public health."

(2)(H)2. The report must include the telephone number of the owner, operator, or designee of the community water system as a source of additional information concerning the report.

(2)(H)3. In communities with a large proportion of non-English speaking residents, as determined by the department, the report must contain information in the appropriate language(s) regarding the importance of the report. The report may use a notice based on the following wording: "This report contains very important information about your drinking water. Translate it or speak with someone who understands it." The report may also contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

(2)(H)4. The report must include information (e.g., time and place of regularly scheduled board meetings) about opportunities for public participation in decisions that may affect the quality of the water.

(2)(H)5. The systems may include such additional information as they deem necessary for public education consistent with, and not detracting from, the purpose of the report.

(2)(H)6. Systems required to comply with the Ground Water Rule.

(2)(H)6.A. Any ground water system that receives notice from the department of a significant deficiency or notice from a laboratory of a fecal indicator-positive ground water source sample that is not invalidated by the department under 10 CSR 60-4.025(3)(D) must inform its customers of any significant deficiency that is uncorrected or of any fecal indicator-positive ground water source sample in the next report. The system must continue to inform the public annually until the department determines that the significant deficiency is corrected or the fecal contamination in the ground water source is addressed under 10 CSR 60-4.025(4)(A). Each report must include the following:

(2)(H)6.A.(I) The nature of the particular significant deficiency or the source of the fecal contamination (if the source is known) and the date the significant deficiency was identified by the department or the dates of the fecal indicator-positive ground water source samples;

(2)(H)6.A.(II) If the fecal contamination in the ground water source has been addressed under $\underline{10}$ CSR 60-4.025(4)(A) and the date of such action;

(2)(H)6.A.(III) For each significant deficiency or fecal contamination in the ground water source that has not been addressed under 10 CSR 60-4.025(4)(A), the department-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed; and

(2)(H)6.A.(IV) If the system receives notice of a fecal indicator-positive ground water source sample that is not invalidated by the department under 10 CSR 60-4.025(3)(D), the potential health effects using the health effects language of Appendix C of this rule.

(2)(H)6.B. If directed by the department, a system with significant deficiencies that have been corrected before the next Consumer Confidence Report is issued must inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction under subparagraph (2)(H)6.A. of this rule.

(3) Required Additional Health Information.

(3)(A) All reports must prominently display the following language: "Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their healthcare providers. Environmental Protection Agency/ Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791)."

(3)(B) Arsenic.

(3)(B)1. A system that detects arsenic at levels above 0.005 mg/l and up to and including 0.01 mg/l must include in its report a short informational statement about arsenic, using language such as: "While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems." The system may write its own educational statement, but only in consultation with the department.

(3)(B)2. Beginning in the report due by July 1, 2002 and ending January 22, 2006, a community water system that detects arsenic above 0.01 mg/L and up to and including 0.05 mg/L must include the arsenic health effects language prescribed by Appendix C of this rule.

(3)(C) A system which detects nitrate at levels above five milligrams per liter (5 mg/l), but below the MCL:

(3)(C)1. Must include a short informational statement about the impacts of nitrate on children using language such as: "Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider."

(3)(C)2. May write its own educational statement, but only in consultation with the department.

(3)(D) Every Consumer Confidence Report must include the following lead-specific information:

(3)(D)1. A short informational statement about lead in drinking water and its effects on children. The statement must include the following information: "If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. [NAME OF UTILITY] is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for thirty (30) seconds to two (2) minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at http://www.epa.gov/safewater/lead"; and

(3)(D)2. The water system may write its own educational statement, but only in consultation with the department.

(4) Report Delivery and Record Keeping.

(4)(A) Systems serving ten thousand (10,000) or more persons must mail or otherwise directly deliver one (1) copy of the report to each customer annually.

(4)(B) Systems serving greater than five hundred (500) persons but fewer than ten thousand (10,000) persons must use one (1) of the following options:

(4)(B)1. Mail or otherwise directly deliver one (1) copy of the report to each customer annually; or

(4)(B)2. All of the following (Systems choosing this option must notify customers that the report will not be mailed. This notification must be published in the newspaper(s) in which the reports are published and provided with any other notification method that is used)--

(4)(B)2.A. Publish the report at least once annually in one (1) or more local newspaper(s) of general circulation, as defined in section 493.050, RSMo, serving the area in which the system is located;

(4)(B)2.B. Provide notice to their customers at least once per year by mail, or door-to-door delivery, or by continuous posting in appropriate locations that the report is available upon request; and

(4)(B)2.C. Post the report continuously at the local water system office, the city/county/ regional public library, and other public buildings within the water system service area.

(4)(C) Systems serving five hundred (500) or fewer persons must use one (1) of the options:

(4)(C)1. Use the method in paragraph (4)(B)1.;

(4)(C)2. Use the method in paragraph (4)(B)2; or

(4)(C)3. Provide notice at least once per year to their customers by mail, or door-to-door delivery, or by continuous posting in appropriate locations that the report is available upon request; and post the report continuously at the local water system office and the city/county/regional public library.

(4)(D) Each community water system must make its reports available to the public upon request.

(4)(E) In addition to the delivery requirement in subsection (4)(A) of this rule, each community water system serving one hundred thousand (100,000) or more persons must post its current year's report to a publicly-accessible site on the Internet. Other water systems with access to a publicly-accessible Internet site are encouraged to use the Internet as an additional method of distribution.

(4)(F) The system must make a good faith effort to reach consumers who do not get water bills, using means recommended by the department. The department expects that an adequate good faith effort will be tailored to the consumers who are served by the system but are not bill-paying customers, such as renters or workers. A good faith effort to reach consumers would include a mix of methods appropriate to the particular system such as: Posting the reports on the Internet; mailing to postal patrons in metropolitan areas; advertising the availability of the report in the news media; publication in a local newspaper; posting in libraries or other public places such as cafeterias or lunch rooms of public buildings; delivery of multiple copies for distribution by single-biller customers such as apartment buildings or large private employers; delivery to community organizations.

(4)(G) No later than the date the system is required to distribute the report to its customers, each community water system must mail a copy of the report to the department, followed within three (3) months by a certification, on a form provided by the department, that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the department.

(4)(H) No later than the date the system is required to distribute the report to its customers, each community water system must deliver the report to any other agency or clearinghouse identified by the department.

(4)(I) Any system subject to this rule must retain copies of its consumer confidence report for no less than three (3) years.

10 CSR 60-9 Chapter 9--Record Maintenance

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10 CSR 60-9.010 Requirements For Maintaining Public Water System Records

10 CSR 60-9.010 Requirements For Maintaining Public Water System Records

PURPOSE: This rule sets out requirements for record maintenance by water suppliers at their premises for the indicated time periods.

(1) All suppliers of water to a public water system must retain records on their premises or at a convenient location near their premises as follows:

(1)(A) Records of bacteriological and operational analyses must be retained for a minimum of five (5) years. Records of chemical analyses must be retained for a minimum of ten (10) years. Actual laboratory reports used in the previous analyses must be retained for the appropriate period given previously. In lieu of an original report or copy, laboratory data may be transferred to tabular summaries provided the following information is included: the date, address, place and time of sampling; identification of the sample (that is, a routine distribution system sample, check sample, raw or other special purpose water sample); date of analysis; laboratory and person responsible for performing analysis; analytical method used and the results of the analysis;

(1)(B) Records of action taken by the system to correct violations of these rules must be retained for a period of at least three (3) years after the last action taken to correct the violation;

(1)(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, must be retained for at least ten (10) years after completion of the sanitary survey;

(1)(D) Records concerning a variance or exemption granted to the system must be retained for a period of at least five (5) years following the expiration of the variance or exemption;

(1)(E) Original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, state determinations and any other information required by <u>10 CSR 60-5.010</u>, <u>10 CSR 60-7.020</u>, and 10 CSR 60-15.010-10 CSR 60-15.090 must be retained for no fewer than twelve (12) years; and

(1)(F) Copies of public notices issued pursuant to 10 CSR 60-8.010 and certifications issued to the department pursuant to 10 CSR 60-7.010(9) shall be kept for at least three (3) years after issuance.

(1)(G) Copies of monitoring plans shall be kept for the same period of time as the records of analyses taken under the plan are required to be kept under subsection (1)(A) of this rule, except as specified elsewhere in 10 CSR 60.

(2) Any records or reports pertaining to the water supply system must be furnished to the department upon request.

(3) Additional Record-Keeping Requirements under the Long-Term 2 Enhanced Surface Water Treatment Rule.

(3)(A) Systems must keep results from the initial round of source water monitoring under $\underline{10}$ CSR 60-4.052(2)(A) and the second round of source water monitoring under $\underline{10}$ CSR 60-4.052(2)(B) until three (3) years after bin classification under 10 CSR 60-4.052(10).

(3)(B) Systems must keep any notification to the department that they will not conduct source water monitoring due to meeting the criteria of 10 CSR 60-4.052(2)(D) for three (3) years.

(3)(C) Systems must keep the results of treatment monitoring associated with microbial toolbox options under 10 CSR 60-4.052(14)-(18) for three (3) years.

(4) Record-Keeping Requirements for the Ground Water Rule. These requirements are in addition to any other applicable record-keeping requirements of this rule.

(4)(A) Documentation of corrective actions shall be kept for a period of not less than ten (10) years.

(4)(B) Documentation of notice to the public as required under 10 CSR 60-4.025(4)(A)7. shall be kept for a period of not less than three (3) years.

(4)(C) Records of decisions under 10 CSR 60-4.025(3)(A)6.B. and records of invalidation of fecal indicator-positive ground water source samples under 10 CSR 60-4.025(3)(D). Documentation shall be kept for a period of not less than five (5) years.

(4)(D) For consecutive systems, documentation of notification to the wholesale system(s) of total-coliform positive samples that are not invalidated under 10 CSR 60-4.020(3) shall be kept for a period of not less than five (5) years.

(4)(E) For systems, including wholesale systems, that are required to perform compliance monitoring under 10 CSR 60-4.025(4)(B) shall maintain-

(4)(E)1. Records of the department-specified minimum disinfectant residual for a period of not less than ten (10) years;

(4)(E)2. Records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the department-prescribed minimum residual disinfectant concentration for a period of more than four (4) hours. Documentation shall be kept for a period of not less than five (5) years; and

(4)(E)3. Records of department-specified compliance requirements for membrane filtration and of parameters specified by the department for department-approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four (4) hours. Documentation shall be kept for a period of not less than five (5) years.

10 CSR 60-10 Chapter 10--Plans And Specifications; Siting Requirements; Recreational Use Of Impoundments

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10 CSR 60-10.010 Plans And Specifications

10 CSR 60-10.020 Siting Requirements

<u>10 CSR 60-10.030</u> Recreational Use Of Public Water Supply Impoundments

10 CSR 60-10.040 Prohibition Of Lead Pipes, Lead Pipe Fittings And Lead Solder And Flux

10 CSR 60-10.010 Plans And Specifications

PURPOSE: This rule sets forth requirements for submission, review and approval of engineering reports, plans and specifications for community water supply planning and construction.

Editor's Note: The secretary of state has determined that the publication of this rule in its entirety would be unduly combersome or expensive. The entire text of the material referenced has been filed with the secretary of state. This material may be found at the Office of the Secretary of State or at the headquarters of the agency and is available to any interested person at a cost established by state law.

(1) Report Required. When plans are being made by a supplier of water to a community water system for constructing expansions, modifications and improvements of the water supply source,

water treatment facility or for the development of a new community water system, the supplier of water shall submit an engineer-prepared report to the department for review and approval. Upon receipt of an engineering report, the department will evaluate the report and either approve the report in writing or outline the requirements for further investigation.

(1)(A) Written approval of the engineering report shall be obtained before construction plans and specifications are finalized.

(1)(B) Engineering reports need not be submitted to the department for facilities constructed under a supervised program.

(1)(C) If the original approved report is more than two (2) years old, an updated engineering report must be submitted before final plans and specifications will be reviewed or as deemed necessary by the department.

(2) Plans and Specifications Required.

(2)(A) Water Treatment Facility.

(2)(A)1. Every supplier of water to a community water supply must submit to the department, plans and specifications prepared by an engineer for review and issuance of a written approval to construct prior to initiating construction of--

(2)(A)1.A. New water treatment facility(ies); and

(2)(A)1.B. Expansions or modifications of existing water treatment facilities which would significantly change or alter plant capacity or treatment processes.

(2)(A)2. The department shall review or advise plans and specifications and may approve the supplier of water and his/her engineer of the review findings, and if required, outline additional information or changes necessary for approval.

(2)(A)3. The department may approve the plans and specifications by issuance of a written approval to construct and shall describe the facilities to be constructed along with any comments or conditions of approval.

(2)(B) Water Supply Source. Every supplier of water to a community water supply must submit to the department plans and specifications prepared by an engineer for review and issuance of a written approval to construct prior to initiating--

(2)(B)1. Construction of a new water supply source(s); or

(2)(B)2. Modification of an existing water supply source which might reasonably result in significant change in the quality or quantity of water originally approved for the source.

(2)(C) Water Distribution System.

(2)(C)1. Every supplier of water to a community water system must submit to the department plans and specifications prepared by an engineer for review and issuance of a written approval to construct prior to initiation construction of--

(2)(C)1.A. Complete new water distribution system(s); and

(2)(C)1.B. Expansion or modification of water distribution systems unless a supervised program of design, construction and construction supervision is maintained by the supplier of water.

(2)(C)2. A supplier of water to a community water supply that desires to conduct a supervised program for construction of water distribution systems, in lieu of submitting plans for approval, must submit, to the department, a written request for approval.

(2)(C)2.A. Approval of supervised programs may be granted for a period of up to five (5) years with automatic renewal. Supervised programs will be periodically reviewed by the department and may be revoked should the supplier of water fail to conduct the program in accordance with the approved plan.

(2)(C)2.B. Upon revocation of a supervised program, engineering plans and specifications must be submitted to the department for review and issuance of a written approval to construct.

(2)(C)2.C. Modification(s) to an approved supervised program may be made by written request to the department.

(2)(C)2.D. A supervised program shall provide the following minimum elements:

(2)(C)2.D.(I) Sizing water mains and appurtenances with minimum four-inch (4") diameters so that a minimum pressure of twenty pounds per square inch (20 psi) is maintained under normal flow conditions. Requests for approval to install lesser diameter water mains serving cul-de-sacs may be granted by the department upon submission of standard design data;

(2)(C)2.D.(II) Maintenance of permanent records and drawings of the entire water distribution network including all appurtenances to the network, such as valves, hydrants and cleanouts, along with plans and specifications of projects under construction for review by the department;

(2)(C)2.D.(III) Selection of construction materials manufactured in conformity with the latest standard specifications issued by the American Water Works Association (AWWA) or other approved specifications;

(2)(C)2.D.(IV) Disinfection of the distribution system in conformity with the latest standard specifications issued by the AWWA or other approved methods prior to placement in service; and

(2)(C)2.D.(V) Protection of water mains during construction from sources of contamination by--

(2)(C)2.D.(V)(a) Maintaining at least a ten-foot (10') horizontal separation of water mains from any existing or proposed sanitary sewer. The distance must be measured edge-to-edge. Installation of the water main closer to a sanitary sewer is acceptable where the water main is laid in a separate trench or on an undisturbed earth shelf located on one (1) side of the sanitary sewer at an elevation that the bottom of the water main is at least eighteen inches (18") above the top of the sanitary sewer;

(2)(C)2.D.(V)(b) Providing a minimum vertical distance of eighteen inches (18") between the outside of the water main and the outside of the sanitary sewer where water mains cross sanitary sewer mains. This shall be the case where the water main is either above or below the sanitary sewer. At crossings, one (1) full length of water pipe must be located so both joints will be as far from the sanitary sewer line as possible. Special structural support for the water and sanitary sewer pipes may be required;

(2)(C)2.D.(V)(c) Providing at least a ten-foot (10') horizontal separation between water mains and sanitary sewer force mains. There shall be an eighteen-inch (18") vertical separation at crossings;

(2)(C)2.D.(V)(d) Locating water mains so that they do not pass through or come in contact with any sanitary sewer manhole; and

(2)(C)2.D.(V)(e) Consulting with the department as to the precautions necessary where the conditions in (2)(C)2.D.(V)(a)--(d) cannot be met.

(3) If construction has not commenced within two (2) years after the date of issue or there is a halt in construction of more than two (2) years, the approval to construct will be void unless an extension of time has been granted by the department.

(4) All construction work must conform to approved plans and specifications.

(4)(A) Should it be necessary or desirable to make a material change in the approved design which will affect water quality, capacity and sanitary features or performance, revised plans and specifications, together with a written statement of the reasons for the change, must be submitted to the department for review and approval must be obtained in writing before the work affected by the change is undertaken.

(4)(B) Minor revisions not affecting water quality, capacity, flow, sanitary features or performance will be permitted during construction without further approval; provided, as-built plans documenting these changes are submitted to the department.

(5) Final Approval of Construction.

(5)(A) A final inspection completed by the department or certified by an engineer with the approval of the department.

(5)(B) Construction conformance with the approved plans and specifications and any changes documented by the submission of two (2) copies of as-built plans with the affixed seal of the engineer.

(5)(C) A supplier of water having an approved supervised program for construction does not need additional approval of construction for work completed under that program.

(6) The department will review engineering reports, engineering plans and specifications, requests for approval of supervised water main extension programs and carry out inspections required for final approval of construction within thirty (30) working days of receipt of request. Review time is subject to emergency conditions, manpower availability or other factors beyond department control.

(7) Essential portions of copies of engineering documents will be kept on file by the department.

10 CSR 60-10.020 Siting Requirements

PURPOSE: This rule establishes requirements for siting of new or expanded water systems.

(1) To the extent practicable, all new or expanded water systems must not be located on a site which--

(1)(A) Is subject to a significant risk from earthquakes, floods, fires, pollution or other disasters which could cause a breakdown of the public water system or a portion of the system; and

(1)(B) Except for intake structures, is within the floodplain of a one hundred (100)-year flood where appropriate records exist.

10 CSR 60-10.030 Recreational Use Of Public Water Supply Impoundments

PURPOSE: This rule establishes limitations on recreational use of water supply impoundments.

(1) Every supplier of water to a public water supply must apply for and secure the approval of the department before permitting the use of public water supply impoundments for recreational usage.

(1)(A) Regulated recreational activities are permitted when provisions for these activities are included in the original planning, construction and approval of the impoundment and water treatment facilities.

(1)(B) Recreational activities proposed for existing impoundments will be appraised in the light of the effect on the primary purposes of the impoundment, the capability of the water treatment works, the physical adaptability of the impoundment to the desired recreational use and the maintenance of public confidence in the water supply.

(2) Where recreational activities are permitted, provisions must be made for local enforcement where applicable. Rules must be posted and maintained in legible condition at conspicuous points in the impoundment area.

10 CSR 60-10.040 Prohibition Of Lead Pipes, Lead Pipe Fittings And Lead Solder And Flux

PURPOSE: This rule protects public water systems and the customer water systems connected to the public water systems from the leaching of lead into the drinking water.

(1) This rule applies to all public water systems.

(2) For the purpose of this rule, the term lead-free, when used with respect to-

(2)(A) Solder and flux, refers to solders and flux containing not more than two-tenths percent (0.2%) lead;

(2)(B) Pipes and pipe fittings, refers to pipes and pipe fittings containing not more than eight percent (8.0%) lead; and

(2)(C) Plumbing fittings and fixtures intended by the manufacturer to dispense water for human ingestion, refers to fittings and fixtures that are in compliance with standards established in accordance with 42 U.S.C. 300g-6(e).

(3) As of January 1, 1989 all materials used in the construction, expansion, modification or improvement of a public water system or customer water system shall be lead free. This section shall not apply to leaded joints necessary for the repair of cast iron pipes.

(4) Any customer water system constructed, expanded, modified or repaired after January 1, 1989 that is connected to a public water system, and later is found to contain materials that are not lead free, shall have the water meter removed or otherwise have the service line severed from the public water system when the supplier of water is so ordered by the appropriate local governmental authority (if one exists) or by the department. The requirements of this section shall not apply to any customer water system previously served by a water system other than a public water system.

(5) No ordinance or rule established by a unit of local government or a supplier of water for the prohibition of lead pipe, lead pipe fittings and lead solder and flux shall be less stringent than the requirements of this rule.

10 CSR 60-11 Chapter 11--Backflow Prevention

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<u>10 CSR 60-11.010</u> Prevention Of Backflow

<u>10 CSR 60-11.030</u> Backflow Prevention Assembly Tester Certification

10 CSR 60-11.010 Prevention Of Backflow

PURPOSE: This rule establishes requirements for protection of public water systems from introduction of contaminants by backflow.

(1) Applicability, Exemptions and Compliance Dates.

(1)(A) Applicability. This rule applies to all community water systems.

(1)(B) Exemptions.

(1)(B)1. This rule does not apply to customer facilities used solely for residential purposes unless a cross-connection is specifically identified or the rule indicates otherwise.

(1)(B)2. The department may issue an exemption from the requirements of paragraphs (3)(A)1. and (3)(B)1. of this rule if the customer can demonstrate to the department, the local governmental authority (if one exists) and the supplier of water that the activities taking place at the customer's facility and the materials used in connection with these activities or stored on the premises cannot endanger the health of customers or degrade the water quality of the public water system should backflow occur, or that any potential risk posed by these materials or activities is isolated from the public water system. Those customers granted an exemption in accordance with this paragraph shall report to the supplier of water any proposed change in process, plumbing or materials used or stored at the exempted facility at least fourteen (14) days prior to making the change.

(1)(B)3. Any exemption granted under paragraph (1)(B)2 of this rule shall be void if the supplier of water, local governmental authority (if one exists) or the department determines that the customer facility has become an actual or potential backflow hazard, or if the customer fails to provide notice at least fourteen (14) days prior to making any change in process, plumbing or materials used or stored at the facility.

(2) Cross-Connections. No customer shall cause or allow the construction or maintenance of an unprotected cross-connection.

(3) Backflow Control by Containment.

(3)(A) Class I Backflow Hazards.

(3)(A)1. A Class I backflow hazard presents an actual or potential health hazard to customers of the public water system should backflow occur. The customer or the customer's authorized representative shall construct a department-approved air-gap separation or install a reduced pressure principle backflow prevention assembly on the customer service line, in accordance with section (4) of this rule, when--

(3)(A)1.A. The supplier of water or local governmental agency (if one exists) requires protection from an actual or potential Class I backflow hazard at any facility;

(3)(A)1.B. Modification is made to the customer water system at an existing facility which is designated an actual or potential backflow hazard in paragraph (3)(A)2. of this rule. If an addition or modification requiring a separate customer service line is made to an existing facility, the new service line as well as the existing customer service line shall be equipped with department-approved backflow prevention assemblies;

(3)(A)1.C. A new customer service line connection is made to a facility listed in paragraph (3)(A)2. of this rule; or

(3)(A)1.D. A backflow incident occurs which introduces a contaminant into the public or customer water system which may create a health hazard.

(3)(A)2. Following is a list, not all inclusive, of actual or potential Class I backflow hazards:

(3)(A)2.A. Aircraft and missile manufacturing plants;

(3)(A)2.B. Automotive plants including, but not limited to, those plants which manufacture motorcycles, automobiles, trucks, recreational vehicles and construction and agricultural equipment;

(3)(A)2.C. Potable water dispensing stations which are served by a public water system;

(3)(A)2.D. Beverage bottling plants including, but not limited to, dairies, soft drink bottlers, and breweries;

(3)(A)2.E. Canneries, packing houses and reduction plants;

(3)(A)2.F. Car washes;

(3)(A)2.G. Chemical, biological and radiological laboratories including, but not limited to, those in high schools, trade schools, colleges, universities and research institutions;

(3)(A)2.H. Hospitals, clinics, medical buildings, autopsy facilities, morgues, mortuaries, veterinary facilities, dental clinics, and other medical facilities;

(3)(A)2.I. Metal or plastic manufacturing, fabrication, cleaning, plating or processing facilities;

(3)(A)2.J. Plants manufacturing paper and paper products;

(3)(A)2.K. Plants manufacturing, refining, compounding or processing fertilizer, film, herbicides, natural or synthetic rubber, pesticides, petroleum or petroleum products, pharmaceuticals, radiological materials or any chemical which would be a contaminant to the public water system;

(3)(A)2.L. Commercial facilities that use herbicides, pesticides, fertilizers or any chemical which would be a contaminant to the public water system;

(3)(A)2.M. Plants processing, blending or refining animal, vegetable or mineral oils;

(3)(A)2.N. Commercial laundries and dye works;

(3)(A)2.O. Sewage, storm water and industrial waste treatment plants and pumping stations;

(3)(A)2.P. Waterfront facilities including piers, docks, marinas and shipyards;

(3)(A)2.Q. Industrial facilities which recycle water;

(3)(A)2.R. Restricted or classified facilities or other facilities closed to the supplier of water or the department;

(3)(A)2.S. Fire sprinkler systems using any chemical additives;

(3)(A)2.T. Auxiliary water systems, including but not limited to alternative water sources;

(3)(A)2.U. Irrigation systems with facilities for injection of pesticides, herbicides or other chemicals or with provisions for creating back pressure. The backflow assembly may be installed between the customer service line and the irrigation system;

(3)(A)2.V. Portable tanks for transporting water taken from a public water system;

(3)(A)2.W. Facilities which have pumped or repressurized cooling or heating systems that are served by a public water system; and

(3)(A)2.X. Facilities which contain any boiler system and are served by a public water system. The backflow assembly may be installed on the water service line to the boiler.

(3)(B) Class II Backflow Hazards.

(3)(B)1. A Class II backflow hazard threatens to degrade the water quality of the public water system should backflow occur. The customer or the customer's authorized representative shall install, as minimum protection for Class II backflow hazards, a department-approved double check valve assembly on the customer service line in accordance with section (5) of this rule when--

(3)(B)1.A. The supplier of water or local governmental agency (if one exists) requires protection from an actual or potential Class II backflow hazard at any facility;

(3)(B)1.B. Modification is made to the customer water system at an existing facility which is designated an actual or potential backflow hazard in paragraph (3)(B)2. If an addition or modification requiring a separate customer service line is made to an existing facility, the new

service line, as well as the existing customer service line, shall be equipped with departmentapproved backflow prevention assemblies;

(3)(B)1.C. A new customer service line connection is made to a new facility listed in paragraph (3)(B)2.; or

(3)(B)1.D. A backflow incident occurs in any situation described in paragraph (3)(B)2. or subsection (3)(C).

(3)(B)2. Following is a list, not all inclusive, of actual or potential Class II backflow hazards:

(3)(B)2.A. Tanks to store water from the public water system for fire fighting only, unless the tanks meet the requirements of the department for construction to maintain bacteriological quality of the water;

(3)(B)2.B. Fire sprinkler systems not using chemical additives. This only applies to new fire sprinkler systems or fire sprinkler systems scheduled for modifications;

(3)(B)2.C. Irrigation systems without facilities for injection of pesticides, herbicides or other chemicals. The backflow assembly may be installed between the customer service line and the irrigation system; and

(3)(B)2.D. Cross-connections that could permit introduction of contaminants into the public or customer water system and create a nuisance, be aesthetically objectionable or cause minor damage to the public water system or its appurtenances.

(3)(C) Customer facilities not designated a backflow hazard by subsection (3)(A) or (B) may be designated a Class I or Class II backflow hazard by written notification from the supplier of water or the department to the customer. The notice shall specify the nature of the customer activity which necessitates designation of the facility as a backflow hazard, the type of backflow protection required and the date by which the customer shall install or construct this assembly on the customer service line to the facility.

(4) Department-Approved Backflow Prevention Assemblies.

(4)(A) The department shall maintain a current list of approved backflow prevention assemblies and shall make this list available to the public upon request.

(4)(B) The discharge pipe of an approved air-gap shall terminate a minimum of two (2) pipe diameters of the discharge pipe above the flood level rim of the receiving vessel; in no case shall the distance be less than one inch (1").

(4)(C) Only those models of double check valve assemblies and reduced pressure principle backflow prevention assemblies which are approved by the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California and are on the approved list maintained by the department are acceptable.

(5) Standards of Construction and Installation.

(5)(A) Reduced pressure principle backflow prevention assemblies shall be installed with no plug or additional piping affixed to the pressure differential relief valve port (except for specifically-designed funnel apparatus available from the manufacturer) and with the pressure differential relief valve port a minimum of twelve inches (12") above floor level. Additionally, the assembly shall be installed at a location where any leakage from the pressure differential relief valve port will be noticed, that allows easy access to the assembly for maintenance and testing, and that will not subject the assembly to flooding, excessive heat or freezing.

(5)(B) All double check valve assemblies shall be installed at a location that allows easy access to the assembly for maintenance and testing and that will not subject the assembly to excessive heat or freezing.

(5)(C) Backflow prevention assemblies shall be installed on the customer water system as close as possible to the point of service connection and prior to any other connection or branch line. If it is not possible to install the backflow prevention assembly as described, then installation shall be at the approval of the department.

(5)(D) No bypass piping shall be allowed around a backflow prevention assembly unless the bypass is equipped with the same degree of backflow prevention protection.

(6) Backflow Prevention Assembly Testing and Inspection.

(6)(A) All backflow prevention assemblies shall be inspected and tested by testers certified in accordance with the requirements and procedures in 10 CSR 60-11.030.

(6)(B) Air-gaps shall be inspected each year by a date which is no later than thirty (30) days past the anniversary date established by the supplier of water to ensure that they continue to meet the requirements of subsection (4)(A).

(6)(C) Reduced pressure principle backflow prevention assemblies shall be tested by a certified backflow prevention assembly tester each year by a date which is no later than thirty (30) days past the anniversary date established by the supplier of water to ensure that--

(6)(C)1. The pressure differential relief valve operates to maintain the zone between the two (2) check valves at least two pounds per square inch (2.0 psi) less than the supply pressure;

(6)(C)2. The #2 check valve is leak tight against reverse flow under all pressure differentials; and

(6)(C)3. The static pressure drop across the #1 check valve is at least three pounds per square inch (3.0 psi) greater than the pressure differential between the supply pressure and the pressure in the zone required to open the pressure differential relief valve.

(6)(D) Double check valve assemblies shall be tested each year by a certified backflow prevention assembly tester by a date which is no later than thirty (30) days past the anniversary

date established by the supplier of water to ensure that both the #1 and #2 check valves maintain at least one pound per square inch (1.0 psi) differential in the direction of flow and are leak tight against reverse flow under all pressure differentials.

(6)(E) All certified backflow prevention assembly testers shall report to the appropriate governmental authority (if one exists), the supplier of water, the customer, and, if requested, the department the results of inspections or tests conducted in compliance with this section (6). Reports of tests shall contain the signature of the certified backflow prevention assembly tester attesting to the compliance (or noncompliance) of the assembly with established operational requirements. Routine reports shall be submitted within thirty (30) days after making the inspection or test. Falsification of testing or inspection information shall be grounds for removing the tester from the list of testers authorized to operate in Missouri.

(7) Customer Responsibilities.

(7)(A) The customer shall furnish, install and maintain in working order at all times any backflow prevention assembly required by this rule.

(7)(B) To ensure that each backflow prevention assembly required by this rule is in working order, the customer shall have each assembly inspected and tested by a certified backflow prevention assembly tester at the time of construction or installation and at the frequency specified in section (6).

(7)(C) The customer shall permit access to the premises by the certified backflow prevention assembly tester, supplier of water and department representatives, at reasonable times and upon presentation of identification, for inspection of the customer water system or testing of backflow prevention assemblies installed in accordance with this rule.

(8) Responsibilities of the Supplier of Water.

(8)(A) Because backflow may cause a health hazard through transmission of contaminants via the public water system, the supplier of water shall remove the water meter or otherwise sever the public water system from the customer service line serving a facility when the supplier of water--

(8)(A)1. Has knowledge that the customer is causing or maintaining an unprotected cross-connection;

(8)(A)2. Has knowledge that the customer is failing or refusing to proceed without delay to correct any violation of the provisions of this rule after having been notified to do so;

(8)(A)3. Is so ordered by the appropriate local governmental authority (if one exists); or

(8)(A)4. Is so ordered by the department because of violation of any provision of this rule by the customer.

(8)(B) The supplier of water shall retain records of the reports of inspections, tests and repairs on backflow prevention assemblies for a period of five (5) years.

(8)(C) The supplier of water may develop, for use within his/her service area, written procedures to implement the provisions of this rule. In developing the procedures, the supplier of water will be permitted to take into account existing backflow prevention programs and incorporate ordinances, regulations or requirements of appropriate local governmental authorities. However, the written procedures shall be no less stringent than the provisions of this rule. The department will prepare and make available on request the appropriate forms needed to assist the supplier of water in implementing the provisions of this rule. The supplier of water may submit the procedures to the department for approval.

(8)(D) The supplier of water shall record the date of the initial inspection or test of backflow prevention assemblies required under subsections (3)(A) and (3)(B) and shall require that an annual inspection or test report be submitted by a certified backflow prevention assembly tester. The supplier of water shall establish an annual anniversary date for these inspection or test reports. If these reports are not received by the supplier of water on or before sixty (60) days following this anniversary date, the supplier of water promptly shall notify the customer, the local governmental agency (if one exists) and the department.

(8)(E) The supplier of water shall notify the department within forty-eight (48) hours whenever a cross-connection problem has occurred which resulted in contamination of the public water system.

10 CSR 60-11.030 Backflow Prevention Assembly Tester Certification

PURPOSE: This rule establishes certification and recertification requirements for backflow prevention assembly tester training programs.

(1) Applicability. This rule applies to all persons seeking certification or recertification as backflow prevention assembly testers. A certified backflow prevention assembly tester shall inspect, test and report on backflow prevention assemblies in accordance with applicable requirements in <u>10 CSR 60-11.010</u>.

(2) Certification Requirements.

(2)(A) Any person seeking to be a certified backflow prevention assembly tester shall--

(2)(A)1. Satisfactorily complete written and performance (hands on) examinations (including questions specific to Missouri backflow prevention rules) provided by the American Backflow Prevention Association (ABPA) Tester Certification Program or the American Society of Sanitary Engineering (ASSE); and

(2)(A)2. Ensure that ABPA or ASSE notifies the department that the tester has passed the examinations. The department shall not be held liable for any failure of ABPA or ASSE to notify the department that a person has passed the written and performance examinations.

(2)(B) Certification shall be valid for three (3) years. Certification may be renewed in accordance with section (4) of this rule.

(2)(C) Submittal of false information shall be grounds for denying or revoking certification.

(3) Examination Schedule. The department shall, in consultation with training providers, prepare an annual schedule of dates and locations of backflow prevention assembly tester examinations. The department shall make this schedule available to backflow prevention assembly tester training providers and to any interested person upon request. (Training providers may offer additional examinations, at their discretion.)

(4) Recertification Requirements.

(4)(A) Any certified tester seeking to be recertified shall--

(4)(A)1. Satisfactorily complete ABPA's or ASSE's recertification requirements, including examination questions on Missouri backflow prevention rules; and

(4)(A)2. Ensure that ABPA or ASSE notifies the department that the tester has satisfactorily completed the requirements. The department shall not be held liable for any failure of ABPA or ASSE to notify the department that a tester has satisfactorily completed the recertification requirements.

(4)(B) Recertification shall be valid for three (3) years.

(4)(C) Submittal of false information shall be grounds for denying or revoking recertification.

(4)(D) Any certified tester who fails the ABPA or ASSE examination within three (3) years of the effective date of this rule shall, upon request and submission of proof having taken and failed the examination, be granted a one (1)-time one hundred twenty (120)-day extension of his/her certification. The tester shall submit, or ensure that the instructor or testing organization submits, to the department a copy of the course roster and test results or other documentation which in the opinion of the department are equivalent.

(5) Reciprocity. Any backflow prevention assembly tester listed with ABPA or ASSE may be certified by the department upon notification from ABPA or ASSE that the tester has satisfactorily completed an examination on Missouri backflow prevention rules.

10 CSR 60-12 Chapter 12--Emergency Operations Plan

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<u>10 CSR 60-12.010</u> Emergency Operations Plan

10 CSR 60-12.010 Emergency Operations Plan

PURPOSE: The purpose of this rule is to insure that a supplier of water to a public water system implements an adequate plan for providing drinking water under emergency conditions.

(1) This rule applies only to community water systems.

(2) Each supplier of water to a community water system shall develop and implement a plan for assuring, to the extent practicable, continuous water service under emergency conditions. Each supplier of water, existing at the time of promulgation of these regulations, shall complete its emergency plan by June 30, 1980.

(2)(A) To facilitate a coordinated response under emergency conditions, a supplier of water to a community water system, serving more that fifty thousand (50,000) population, shall file two (2) copies of its emergency response plan with the department.

(2)(B) A supplier of water to a community water system serving less than fifty thousand (50,000) population need not file a copy of their plan with the department but must make a copy available to key operating personnel and for inspection by department personnel during inspection of the water supply facilities.

(3) Emergency operation plans for a community water system prepared by the suppliers of water must include as a minimum:

(3)(A) Designation of a coordinator and key personnel to be on call under emergency conditions;

(3)(B) Designation of personnel authorized to expend funds under emergency conditions;

(3)(C) A list of quarterly-updated home and office telephone numbers of the coordinator, key operational personnel and state and local assistance sources;

(3)(D) A list of alternative water systems which could be made available if the basic system were incapacitated. Evaluation and assessment of alternate water systems shall take into account accessibility for tank trucks (to include municipal, private and other sources), capacity of filling facilities and location of alternative facilities;

(3)(E) An inventory of equipment available under emergency conditions; and

(3)(F) Written emergency procedures (available from the department), including those for tank truck disinfection and protection, installation of emergency chlorinators or disinfection of trucked water.

10 CSR 60-13 Chapter 13--Grants And Loans

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10 CSR 60-13.010 Grants For Public Water Supply Districts And Small Municipal Water Supply Systems

PURPOSE: This rule establishes the department's grant application procedures requirements and for construction of projects at public water supply districts and rural community water systems, and providing source water protection grants to support the Conservation Reserve Enhancement Program.

(1) Application Requirements.

(1)(A) As required by section 640.615, RSMo, the applicant must first apply with the agency or other financial source which is to furnish the primary financial assistance, and after the amount of that assistance has been determined, an application for a grant under this rule may be made to and processed by the department. This requirement may be met by the submittal of a pre-application form and preliminary engineering report to the Missouri Water and Wastewater Review Committee. The application shall be submitted on forms provided by the department. The application shall be supported by the necessary documents and forms from other state and federal grant or lending agencies or private lending agencies to enable the department to establish eligibility and need for grant funds.

(1)(B) The project for which the grant application is submitted shall comply with appropriate state and local laws, rules and ordinances.

(1)(C) These grants are to be considered secondary sources of funding and, as such, shall in no case exceed one thousand four hundred dollars (\$1,400) per contracted connection, fifty percent (50%) of the total project cost, or five hundred thousand dollars (\$500,000), whichever is less.

(1)(D) Other than pre-approved financing costs, no more than fifty percent (50%) of of the total eligible cost will be reimbursed through the grant. Grant funds can be used for the following costs:

(1)(D)1. Construction contracts for new construction, rehabilitation or upgrade of publicly owned treatment systems including upgrades made to comply with additional safe drinking water requirements.

(1)(D)2. Engineering costs including design, planning and construction phase engineering if the costs are supported by an engineering agreement pre-approved by the department. The proportional cost of the engineering will be eligible when the project includes non-eligible construction costs.

(1)(D)3. One hundred percent (100%) of the reasonable costs of a grant anticipation loan will be eligible. Departmental approval must be obtained prior to securing the grant anticipation loan. Grant anticipation loan costs will be approved when they are needed for cash flow purposes for the period between the grant award and the first payment from the department. The approved costs of the grant anticipation notes will be in addition to the approved grant amount.

(1)(E) The grant application packet shall contain the following information:

(1)(E)1. A preliminary engineering cost study for the proposed project including, but not limited to, the following items: development and administration costs; land, structures, right-of-way costs; legal costs; engineering costs; interest costs; equipment costs; contingencies; other costs; and total project costs;

(1)(E)2. An engineering report for the proposed project which is in accordance with accepted engineering practices, the current "Design Guide for Community Water System" and "Ten State Standards" and applicable rules should be considered for design standards;

(1)(E)3. The information required to determine the cost per contracted connection;

(1)(E)4. The median annual household income of the residents in the district or community as determined in the latest federal census;

(1)(E)5. Information required to determine the ratio of the contracted users to the potential users; and

(1)(E)6. An evaluation of the applicant's technical, managerial, and financial (TMF) capacity on forms provided by the department. An applicant that does not meet the TMF capacity requirements established in 10 CSR 60-3.030 shall submit a plan outlining the steps the applicant will take to meet the requirements. The plan shall show the applicant will meet TMF requirements before the project is complete or within one (1) year of the award of the grant unless the department determines that a longer period of time is necessary.

(2) Grant Priorities.

(2)(A) Priorities for grants for public water supply districts and rural community water systems shall be established by the department.

(2)(B) Determination of relative need will be coordinated with appropriate federal grant and lending agencies and with appropriate state agencies. Preference may be given to projects needing a grant in order to obtain state or federal drinking water loan assistance. It is the intent of the department to maximize the effective use of state and federal grant and loan funds.

(2)(C) Additional priority will be awarded to projects whose projected financial need is based on potential compliance with additional safe drinking water requirements.

(2)(D) Priority will be given to applicants who consider regionalization or for projects that include regionalization.

(3) Approval and Payment of Grants Made and Amended Between March 4, 2007 and August 30, 2007.

(3)(A) The applicant shall be notified by the department when the grant application has been approved. Grant award shall be made upon receipt and approval of bid documents and executed contract documents.

(3)(B) Full payment of the grant amount for the construction project less any payments processed prior to the date of this rule shall be made at the time of the department's receipt of the executed grant or grant amendment. The following provisions shall apply:

(3)(B)1. The grantee shall establish a separate escrow account with a bank as defined in Chapter 409, section 409-1.102;

(3)(B)2. The full grant award amount, less any payments processed prior to the date of this rule, will be paid to the grantee for deposit into the grantee's established escrow account;

(3)(B)3. Grant funds in the escrow account may be used to pay up to fifty percent (50%) of the costs of construction, equipment and construction phase engineering as the costs are incurred; and

(3)(B)4. The grantee shall submit the bank statement of the escrow account monthly, within thirty (30) days of the end of the month. If the monthly statement indicates that funds were withdrawn, the grantee shall submit copies of the invoices to document the costs.

(3)(C) Any cost of work completed after the department's final inspection approval shall not be an eligible project cost. The grant amount will be reduced, if necessary, to reflect actual project costs as determined by the invoices submitted by the grantee.

(3)(D) An audit to verify expenditures of grant funds may be made by the department after the completion of each approved project. Any funds found not expended for the purposes listed in subsection (1)(D) of this regulation will be recovered.

(4) Approval and Payment of Grants Made after August 30, 2007.

(4)(A) The applicant shall be notified by the department when the grant application has been approved. Grant award shall be made upon receipt and approval of bid documents and executed contract documents. The department, based on the status of state funding, may elect to pay out the full grant amount at the time of grant award or to make payments to the grantee.

(4)(B) If the department elects to make full payment of the grant amount for the construction project, payment shall be made at the time of the department's receipt of the executed grant document. The following provisions shall apply:

(4)(B)1. The grantee shall establish a separate escrow account with a bank as defined in Chapter 409, section 409-1.102;

(4)(B)2. The full grant award amount, less any payments processed prior to the date of this rule, will be paid to the grantee for deposit into the grantee's established escrow account;

(4)(B)3. Grant funds in the escrow account may be used to pay up to fifty percent (50%) of the eligible costs shown in subsection (1)(D) of this rule except that one hundred percent (100%) of the reasonable costs associated with a grant anticipation loan will be eligible when this financing is pre-approved by the department.

(4)(B)4. The grantee shall submit the bank statement of the escrow account monthly, within thirty (30) days of the end of the month. If the monthly statement indicates that funds were withdrawn, the grantee shall submit copies of the invoices to document the costs.

(4)(B)5. The bank account may earn interest, however, all withdrawals from the account must be documented with eligible invoices. If the project costs are inadequate to withdraw all the funds in the account, the balance must be refunded to the department.

(4)(C) If the department elects to make grant payments rather than fund the full grant, payment can be requested no more frequently than monthly. The department will provide a payment request form for the grantee to use. The payment request must be supported by invoices that document the costs incurred.

(4)(D) Any cost of work completed after the department's final inspection approval shall not be an eligible cost. The grant amount will be reduced, if necessary, to reflect actual project costs as determined by the invoices submitted by the grantee.

(4)(E) An audit to verify expenditure of grant funds may be made by the department after the completion of each approved project. Any funds found not expended for the purposes listed in paragraph (4)(B)3. of this regulation will be recovered.

(4)(F) Any funds remaining in the escrow account three (3) years after the date of the initial grant payment will be recovered by the department. On grants that are paid incrementally by the department, no payments will be made after three (3) years from the initial grant award acceptance.

(4)(G) An audit to verify expenditure of grant funds may be made by the department after the completion of each approved project. Any funds found not expended for the purposes listed in subsection (1)(D) of this regulation will be recovered.

(5) If at any time during the first twenty (20)-years of the design life of the facility(ies) funded under this rule the facility is sold, leased or otherwise transferred, either outright or on a contract for deed or lease-purchase agreement, to other than a political subdivision of the state, the state shall require reimbursement of the grant funds. The total amount of the grant funds to be reimbursed shall be based on a twenty (20)-year straight-line depreciation. Grant funds to be reimbursed, shall become due and payable upon transfer of ownership of the facility(ies).

(6) Grants for Conservation Reserve Enhancement Program Participants.

(6)(A) Program Description and Definition of Terms.

(6)(A)1. The Conservation Reserve Enhancement Program (CREP) is a state-federal partnership program targeted to address specific water quality, soil erosion and wildlife habitat issues related to agricultural use. The CREP uses financial incentives to encourage farmers to voluntarily enroll in contracts to remove lands from agricultural production and, instead, to implement approved conservation reserve practices.

(6)(A)2. Approved conservation reserve practices in this program are: introduced grasses and legumes, native grasses, hardwood tree planting, wildlife habitat, contour grass strips, filter strips, riparian buffers, and wetland restoration.

(6)(A)3. The purpose of the grants provided under this section (6) is to provide an additional cash incentive ("rental enhancement payment") to farmers to encourage participation in CREP. The rental enhancement payment is a per-acre cash payment to participating farmers for land enrolled in the CREP that is in addition to other payments or financial assistance from federal or state funds and is a percentage of the annual base rental payment.

(6)(A)4. The annual base rental payment is the average weighted soil rental rate for the three (3) predominant soil types on the acreage offered. The U.S. Department of Agriculture maintains this information on a county-by-county basis for the entire country.

(6)(B) Application Requirements.

(6)(B)1. As required by section 640.615, RSMo, the applicant must first apply with the agency or other financial source which is to furnish the primary financial assistance. After the amount of that assistance has been determined, an application for a grant shall be submitted on forms provided by the department. The application shall be supported by the necessary documents and forms from other state and federal grant or lending agencies or private lending agencies to enable the department to establish eligibility and need for grant funds.

(6)(B)2. The application shall contain:

(6)(B)2.A. The number of acres being protected;

(6)(B)2.B. The source for the local match;
(6)(B)2.C. A letter from the local soil conservation district approving the proposed practices to be implemented including a reasonable time line for completion;

(6)(B)2.D. A legal description of the project; and

(6)(B)2.E. The name and address of the farmer(s) (subrecipients) proposing the practices.

(6)(B)3. The project for which the grant application is submitted shall comply with appropriate state and local laws, rules and ordinances. These projects shall be limited to those areas with a source water protection program approved by the department.

(6)(B)4. These grants are to be considered secondary sources of funding and, as such, shall in no case exceed one thousand four hundred dollars (\$1,400) per contracted connection, fifty percent (50%) of the total project cost, or five hundred thousand dollars (\$500,000), whichever is less.

(6)(B)5. A local match for the rental enhancement payment grant is expected.

(6)(B)5.A. The department expects rental enhancement payment grants not to exceed the product of five percent (5%) of the annual base rental payment times the duration of the contract in years (for example, if the contract is in effect fifteen (15) years, the rental enhancement grant would equal seventy-five percent (75%) of the total of all annual base rental payments), and expects this to be matched with an equal amount of other nonfederal funding.

(6)(B)5.B. Funding priority will be given to those applicants that offer the highest percentage of matching funds. If matching funds are not available, the applicant may request a reduction or waiver of the match requirement, in which case the rental enhancement payment grant shall not exceed the product of ten percent (10%) of the annual base rental payment times the duration of the contract in years.

(6)(C) Approval and Payment of Grants.

(6)(C)1. The applicant shall be notified by the department when the grant application has been approved.

(6)(C)2. Payments will be made to the recipient after completion of the approved practice. These grant payments shall be made immediately available to the farmer (subrecipient) implementing the practices. Grant payments to the recipient may be combined to cover multiple subrecipients.

(6)(C)3. The payment procedures in subsections (5)(B) and (5)(C) of this rule may be used by the department in order to better manage the cash available to the department. The department will notify the CREP fund recipient if this occurs.

(6)(D) If a subrecipient fails to carry out the terms and conditions of the CREP contract, the state may require reimbursement of the rental enhancement payment portion of the grant with interest.

10 CSR 60-13.020 Drinking Water Revolving Fund Loan Program

PURPOSE: This rule sets forth eligibility and application requirements for applicants for loans from the Drinking Water Revolving Fund established in section 640.107, RSMo as a subfund of the Water and Wastewater Loan Fund, and describes the evaluation and priority point award process.

The rule establishes requirements for loan recipients, including binding commitments, preclosing, loan closing, accounting, record keeping, procurement and contract requirements. Eligible and noneligible costs are specified. Criteria for project by-pass, project removal and modification of funding are established. The leveraged loan structure for the Drinking Water Revolving Fund established in section 640.107, RSMo as a subfund of the Water and Wastewater Loan Fund is described.

(1) Application and Eligibility Requirements. This section applies to applicants for loan assistance from the Drinking Water Revolving Fund established in section 640.107, RSMo, as a subfund of the Water and Wastewater Loan Fund. Recipients of assistance under the American Recovery and Reinvestment Act (ARRA) of 2009 are subject to the requirements of this regulation, unless otherwise specified.

(1)(A) Definitions.

(1)(A)1. The terms and definitions in <u>10 CSR 60-2.015</u> apply to the rules in this chapter.

(1)(A)2. Additional terms specific to the Drinking Water State Revolving Fund (DWSRF) program are defined in this subsection.

(1)(A)2.A. ARRA--American Recovery and Reinvestment Act of 2009 (P.L. 111-5).

(1)(A)2.B. Binding commitment--A legal obligation by the state to a local recipient that defines the terms and the timing for assistance under the Drinking Water Revolving Fund.

(1)(A)2.C. Comprehensive project list--The list of all eligible projects for which applications have been received and evaluated.

(1)(A)2.D. Drinking Water Revolving Fund (DWRF)--The Drinking Water Revolving Fund for loans established as a subfund of the Water and Wastewater Loan Fund by section 640.107, RSMo. The DWRF shall be maintained and accounted for separately, and moneys in the DWRF shall be used only for purposes authorized in the federal Safe Drinking Water Act (SDWA).

(1)(A)2.E. Drinking Water State Revolving Fund (DWSRF)--The entire program established under section 1452 of the federal Safe Drinking Water Act (SDWA), which includes DWRF loans and other activities allowed under that section of the SDWA.

(1)(A)2.F. Equivalency projects--Projects that must total the amount equal to the federal capitalization grants and must comply with environmental review requirements and federal cross-cutting authorities.

(1)(A)2.G. Fundable list--The list of projects to receive funding during the fiscal year covered by the intended use plan (IUP).

(1)(A)2.H. Initiation of operation--The date when the first construction contract is completed and the constructed component is capable of being used for its intended purpose.

(1)(A)2.I. Intended use plan--A document prepared each year that identifies the intended uses of the funds in the DWSRF and describes how those uses support the goals of the DWSRF.

(1)(B) Eligible Public Water Systems.

(1)(B)1. Community water systems and not-for-profit noncommunity water systems located in Missouri that are not federally owned are eligible to apply for DWRF loans. Eligibility to apply does not guarantee assistance or eligibility for assistance.

(1)(B)2. All other types of public water systems are not eligible to apply for DWRF loans.

(1)(C) Eligible Projects.

(1)(C)1. Assistance may be provided for expenditures (not including monitoring, operation, and maintenance expenditures) of a type or category which will facilitate compliance with national primary drinking water regulations applicable to the system or otherwise significantly further the health protection objectives of the federal Safe Drinking Water Act (SDWA).

(1)(C)2. Projects to address federal SDWA health standards identified in the intended use plan or in the DWRF loan priority point criteria that have been exceeded and projects to prevent future violations of the rules are eligible for funding. These include projects to maintain compliance with existing regulations for contaminants with acute health effects (such as the Surface Water Treatment Rule, the Total Coliform Rule, and nitrate standard) and regulations for contaminants with chronic health effects (such as Lead and Copper Rule, Phases I, II, and V Rules, and safety standards for total trihalomethanes, arsenic, barium, cadmium, chromium, fluoride, mercury, selenium, combined radium-226, -228, and gross alpha particle activity).

(1)(C)3. Projects to address imminent federal SDWA health standards (identified in the annual intended use plan) that have been exceeded or to prevent future violations of the anticipated rules are eligible for funding.

(1)(C)4. Projects to replace aging infrastructure are eligible if they are needed to maintain compliance or further the public health protection objectives of the federal SDWA. Examples of these include projects to:

(1)(C)4.A. Rehabilitate or develop sources (excluding reservoirs, dams, dam rehabilitation and water rights) to replace contaminated sources;

(1)(C)4.B. Install or upgrade treatment facilities if, in the department's opinion, the project would improve the quality of drinking water to comply with primary or secondary standards;

(1)(C)4.C. Install or upgrade storage facilities, including finished water reservoirs, to prevent microbiological contaminants from entering the water system; and

(1)(C)4.D. Install or replace transmission and distribution pipes to prevent contamination caused by leaks or breaks in the pipe, or improve water pressure to safe levels.

(1)(C)5. Projects to consolidate water supplies (for example, when individual homes or other public water supplies have a water supply that is contaminated, or the system is unable to maintain compliance for financial or managerial reasons) are eligible for DWRF loan assistance.

(1)(C)6. The purchase of a portion of another system's capacity is eligible for a loan if it is the most cost-effective solution.

(1)(D) Application Procedures.

(1)(D)1. Application deadline.

(1)(D)1.A. Applications must be postmarked or received by the Water Protection Program by the calendar date established in the annual application package as the application deadline. The deadline will be no sooner than sixty (60) days after the application package is made available. The department may extend this deadline if insufficient applications are received to use all of the funds expected to be available.

(1)(D)1.B. Applications for ARRA funding will be accepted upon announcement by the department and must meet program guidance and federal law or regulations as appropriate and applicable.

(1)(D)1.C. Applicants that have an outstanding state revolving fund (SRF) loan balance must be in compliance with the terms and conditions of their loan agreements to be eligible for additional funding.

(1)(D)2. Applicants shall provide:

(1)(D)2.A. A completed application form provided by the department;

(1)(D)2.B. Documentation that they have a chief operator certified at the appropriate level, or expect to have prior to loan award;

(1)(D)2.C. Documentation that they have an emergency operating plan, or expect to have prior to loan award;

(1)(D)2.D. Any additional information requested by the department for priority point award or project evaluation;

(1)(D)2.E. Any additional information request by the department to determine the applicant's compliance history and technical, managerial, and financial capacity as required under the federal SDWA; and

(1)(D)2.F. Any additional information for determination of financial capability of the applicant. This may include but is not limited to: changes in economic growth, changes in population growth, depreciation, existing debt, revenues, project costs, and effects of the project on user charge rates.

(1)(D)3. Unsuccessful applicants requesting funds during a given fiscal year who have completed the requirements in this section (1) shall be considered for funding the next fiscal year and need not reapply.

(1)(D)4. By submission of its application, the applicant certifies and warrants that he/she has not, nor will through the DWRF loan amortization period, violate any of his/her bond covenants.

(1)(E) Evaluation and Priority Point Award.

(1)(E)1. Projects will be assigned priority points in accordance with the DWRF loan priority point criteria and, in addition, applications seeking ARRA funding shall also be rated in accordance with the ARRA and corresponding guidance. The department shall annually seek public review and comment on the DWRF loan priority point criteria. The commission shall approve the DWRF loan priority point criteria at least sixty (60) days prior to the annual application deadline.

(1)(E)2. Projects will be listed in the intended use plan in priority order according to the number of priority points assigned to the project. Projects accumulating the same number of total priority points will be ranked using the tie-breaking criteria in the DWRF loan priority point criteria. In addition, applications seeking ARRA funding shall also be rated in accordance with the ARRA and corresponding guidance.

(1)(E)3. The department shall prepare and seek public comment on an annual intended use plan that meets or exceeds federal requirements, including the list of proposed projects. The commission may hold one (1) or more public meetings or public hearings on the intended use plan for loans. Any applicant aggrieved by his/her standing may appeal to the commission during the public comment process.

(1)(E)4. No DWRF loan assistance shall be provided to a public water system that does not have the technical, managerial, and financial (TMF) capacity to ensure compliance with the federal SDWA, unless the owner or operator of the system agrees to undertake feasible and appropriate changes to ensure that the system has TMF capacity.

(1)(E)5. No DWRF loan assistance shall be provided to a public water system that is in significant noncompliance with any requirement of a national primary drinking water regulation or variance unless use of the assistance will ensure compliance.

(1)(E)6. The department may hold a separate competition for projects seeking funding whenever appropriate and allowed by federal law.

(2) Requirements for Loan Recipients. This section applies to recipients of loans from the Drinking Water Revolving Fund established in section 640.107, RSMo, as a subfund of the Water and Wastewater Loan Fund. The recipient must satisfy more stringent requirements if required to do so by federal, state, or local statutes, policies, rules, ordinances, guidance, or orders.

(2)(A) Leveraged Loans. The department may direct projects toward the leveraged loan structure described in section (4) of this rule. The department's decisions shall be based upon the amount of DWRF assistance funds available, the amount of DWRF assistance funds requested, the size of the project, the credit worthiness of the applicant and the applicant's authority to incur long-term debt. For such projects, the requirements in section (4) apply in addition to the requirements in sections (1)-(3) of this rule.

(2)(B) Fees.

(2)(B)1. Under the authority of section 644.106, RSMo, the department may charge an administrative fee on assistance made pursuant to Chapter 644, RSMo, which includes the Water and Wastewater Loan Fund. The Drinking Water Revolving Fund is a subfund of that fund. The department and Clean Water Commission set the administrative fee under their authority in section 644.106, RSMo and the fee does not exceed one percent (1%) of the outstanding loan balance of each DWRF loan.

(2)(B)2. Additional administrative fees. Additional administrative fees may be assessed by the department, under the authority of section 644.106, RSMo, at the time the administration fee is calculated for failure by a recipient to submit approved documents to the department (for example, operation and maintenance manuals, plan of operation, enacted user charge and water use ordinances, executed contract documents) in accordance with the time frames provided under the program agreement entered into by the recipient. The additional fee will be an additional one-tenth percent (.1%) per month that the document remains delinquent. The additional fee will be collected only during the year in which the document is not submitted.

(2)(C) Equivalency Projects. For equivalency projects the recipient and its contractors must comply with all requirements associated with funds provided under the federal Safe Drinking Water Act. The department will identify equivalency projects and notify potential loan recipients.

(2)(D) Design. Design of projects for community water systems shall conform with accepted engineering practices. Design of projects for applicable noncommunity water systems shall conform with accepted engineering practices and the current "Standards for Non-Community Public Water Supplies." A preliminary design submittal, including the design criteria and facilities layout sheet, may be required at approximately the twenty percent (20%) design stage.

(2)(E) Public Participation. The public must be allowed an opportunity to exchange ideas with the applicant during project development. Public participation must be preceded by timely distribution of information and must occur sufficiently in advance of decision making to allow the recipient to assimilate public views into action. At a minimum, the recipient must provide the opportunities for public participation listed in this subsection, except that Public Service Commission (PSC)-regulated utilities must proceed through appropriate procedures established by the PSC.

(2)(E)1. A public meeting shall be conducted to discuss the alternative engineering solutions. Public notice of the meeting should be published at least thirty (30) days prior to the meeting date in one (1) or more local newspapers, as needed to cover the project service area. The recipient shall prepare a transcript, recording, or other complete record of the proceeding along with proof of publication and submit it to the department and make it available at no more than cost to anyone who requests it. A copy of the record should be available for public review.

(2)(E)2. Prior to approval of the draft user charge ordinance, a public meeting shall be conducted to address the proposed user charge rates. Public notice of the meeting should be published at least thirty (30) days prior to the meeting date in one (1) or more local newspapers, as needed to cover the project service area. The recipient shall prepare a transcript, recording, or other complete record of the proceeding along with proof of publication and submit it to the department and make it available at no more than cost to anyone who requests it. A copy of the record should be available for public review.

(2)(E)3. Public participation requirements for environmental review are in <u>10 CSR 60-13.030</u>.

(2)(F) Binding Commitment. In order for the department to offer to enter into a binding commitment, all documents and information required in this subsection (2)(F) must be submitted to the department at least sixty (60) days prior to the applicant's binding commitment deadline established by the department.

(2)(F)1. Engineering report. The applicant must submit an engineering report that meets or exceeds the requirements in this subsection and applicable public participation requirements in subsection (2)(E) of this rule.

(2)(F)1.A. Engineering reports of projects for community water systems must be in accordance with accepted engineering practices. References such as the current "Design Guide for Community Water Systems" and "Ten State Standards" should be considered for design standards.

(2)(F)1.B. Engineering reports of projects for non-community water systems must be in accordance with accepted engineering practices and the current "Standards for Non-Community Public Water Supplies."

(2)(F)1.C. The most feasible, economic and environmentally sound alternatives for providing safe drinking water must be studied and evaluated.

(2)(F)1.D. An estimate of the average user charge including documentation of the basis of the estimate must be included.

(2)(F)1.E. An assessment of the environmental conditions and impact of the proposed project on the environment is required.

(2)(F)2. Detailed project budget. A detailed proposed project budget shall be submitted.

(2)(F)3. Project schedule. A proposed project schedule shall be submitted, including, at a minimum:

(2)(F)3.A. Construction start defined as date of issuance of notice to proceed;

(2)(F)3.B. Construction completion;

(2)(F)3.C. Initiation of operation; and

(2)(F)3.D. Project completion.

(2)(F)4. Environment review. All applicable environmental review requirements in 10 CSR 60-13.030 must be completed before the department enters into a binding commitment with the applicant.

(2)(G) Additional Preclosing Requirements. After the department has entered into a binding commitment with the applicant, the following requirements must be met before loan closing can occur. All documents and information necessary to provide assistance must be submitted to the department in sufficient time to allow adequate time for review and must be approved sixty (60) days prior to the loan closing date established by the department. The department may extend deadlines if justified.

(2)(G)1. Final document submittal. The following documents must be submitted to and approved by the department:

(2)(G)1.A. Resolution identifying the authorized representative by name. Applicants for assistance under the DWRF shall provide a resolution by the governing body designating a representative authorized to file the application for assistance, reimbursement requests and act in behalf of the applicant in all matters related to the project;

(2)(G)1.B. Any and all changes to the proposed project schedule;

(2)(G)1.C. Draft engineering contract as described in subsection (2)(L) of this rule;

(2)(G)1.D. Plans and specifications certified by a registered professional engineer licensed in Missouri;

(2)(G)1.E. Certification of easements and real property acquisition. Recipients of assistance under the DWRF loan program shall have obtained title or option to the property or easements for the project prior to loan closing;

(2)(G)1.F. Draft user charge and water use ordinances as described in paragraph (2)(G)3. of this rule; and

(2)(G)1.G. Other information or documentation deemed necessary by the applicant or the department to ensure the proper expenditure of DWRF funds.

(2)(G)2. Projects serving multiple water systems. Prior to closing, if the project serves two (2) or more public water systems, the applicant shall submit executed agreements or contracts between the public water systems for the financing, construction, and operation of the proposed facilities. At a minimum, the agreement or contract shall include:

(2)(G)2.A. The operation and maintenance responsibilities of each party upon which the costs are allocated;

(2)(G)2.B. The formula by which the costs are allocated; and

(2)(G)2.C. The manner in which the costs are allocated.

(2)(G)3. User charge (water rate) ordinance.

(2)(G)3.A. For non-PSC-regulated utilities:

(2)(G)3.A.(I) Loan recipients are required to maintain, for the useful life of the project, user charge ordinances approved by the department. User charge ordinances, at a minimum, shall be adopted prior to financing and implemented by the initiation of operation of the financed project. A copy of the enacted ordinances shall be submitted prior to initiation of operation;

(2)(G)3.A.(II) The user charge system shall be designed to produce adequate revenues required for the operation and maintenance, including a reserve for equipment replacement. A one hundred ten percent (110%) debt service reserve may be required. Each user charge system shall:

(2)(G)3.A.(II)(a) Be based upon actual use;

(2)(G)3.A.(II)(b) Include an adequate financial management system that will accurately account for revenues generated by the system, debt service and loan fee costs, and expenditures for operation and maintenance, including replacement based on an adequate budget identifying the basis for determining the annual operation and maintenance costs and the costs of personnel, material, energy, and administration; and

(2)(G)3.A.(II)(c) Provide for an annual review of charges; and

(2)(G)3.A.(III) The loan recipient shall submit to the department, for review and approval, the methodology used for determining user rates.

(2)(G)3.B. PSC-regulated utilities shall comply with the requirements of the PSC in developing and implementing their user charge ordinances but shall ensure that sufficient rates and charges are in effect to satisfy bond covenants throughout the term of the loan.

(2)(G)4. Water use ordinance. Applicants dependent on user fees for debt payment or operation and maintenance expenses shall have in place an enforceable water use ordinance prior to loan closure. The water use ordinance shall address water system responsibilities and customer responsibility relating to installation and maintenance of water meters and water lines; easements; alternative sources of water; and provisions for breach of contract and liquidated damages. The water use ordinance is intended to be an effective business tool for the efficient management of the water system.

(2)(G)5. Additional requirements for privately-owned public water systems. Privately-owned public water systems must provide documentation from the Missouri Department of Economic Development showing an allocation under Missouri's private activity bond cap and must obtain any necessary approvals from the Public Service Commission.

(2)(H) Operation and Maintenance.

(2)(H)1. Plan of operation.

(2)(H)1.A. If required by the department, the recipient of assistance for construction of public water systems must make provision satisfactory to the department for the development of a plan of operation designed to assure operational efficiency be achieved as quickly as possible. A plan of operation must be submitted by fifty percent (50%) construction completion and approved by ninety percent (90%) construction completion.

(2)(H)1.B. The recipient will ensure that the schedule of tasks as outlined in the approved plan of operation is implemented and completed in accordance with the schedules and prior to final inspection of the project. Plan of operations must be approved by the official project start-up date.

(2)(H)2. Operation and maintenance manual. The recipient must make provision satisfactory to the department for assuring effective operation and maintenance of the constructed project throughout its design life. If required by the department, recipients of assistance for construction of mechanical facilities must make provision satisfactory to the department to develop for approval an operation and maintenance manual. The operation and maintenance manual, if required, must be submitted by eighty percent (80%) construction completion.

(2)(H)3. Start-up training. At fifty percent (50%) construction completion, a start-up training proposal (if required) and proposed follow-up services contract must be submitted. This contract must be approved by ninety percent (90%) construction completion.

(2)(H)4. Certified operator. The recipient must make provision satisfactory to the department for assuring that certified operator(s) and maintenance personnel are hired in accordance with an approved schedule.

(2)(H)5. System certification. One (1) year after initiation of operation of the constructed public water system, the recipient shall certify to the department whether or not the public water system meets the project performance standards. Any statement of noncompliance must be accompanied by a corrective action report containing an analysis of the cause of the project's inability to meet performance standards, actions necessary to bring it into compliance, and reasonably scheduled date for positive certification of the project. Timely corrective action shall be executed by the recipient.

(2)(I) Accounting and Audits. Applicants are required to have a dedicated source for repayment of any loans and an adequate financial management system and audit procedure for the project which provides efficient and effective accountability and control of all property, funds, and assets related to the project. The applicant's financial system is subject to state or federal audits to assure fiscal integrity of public funds.

(2)(I)1. Each recipient is expected to have an adequate accounting system for the project which provides efficient and effective accountability and control of all property, funds, and assets.

(2)(I)1.A. The recipient is responsible for maintaining a financial management system which will adequately provide for an accurate, current, and complete disclosure of the financial results of each loan project. The proprietary fund (business-related fund) accounting will be in accordance with generally accepted government accounting principles and practices, regardless of the source of funds.

(2)(I)1.B. An acceptable accounting system includes books and records showing all financial transactions related to the construction project. The system must document all receipt and disbursement transactions. It also must group them by type of account (for example, asset, revenue, expense, etc.) and by individual expense account (for example, personnel salaries and wages, subcontract costs, etc.) The recipient shall maintain books, records, documents, and other evidence and accounting procedures and practices, sufficient to reflect properly the amount, receipt, and disposition by the recipient for all assistance received for the project and the total costs of the project of whatever nature incurred for the performance of the project for which the assistance was awarded. Some of the minimum standards for an adequate accounting system are:

(2)(I)1.B.(I) The accounting system should be on a double entry basis with a general ledger in which all transactions are recorded in detail or in summary from subordinate accounts;

(2)(I)1.B.(II) Recording of transactions pertaining to the construction project should be all inclusive, timely, verifiable, and supported by documentation;

(2)(I)1.B.(III) The system must disclose the receipt and use of all funds received in support of the project;

(2)(I)1.B.(IV) Responsibility for all project funds must be placed with either a project manager or trust agent;

(2)(I)1.B.(V) Responsibility for accounting and control must be segregated from project operations. The accounting system and related procedures should be documented for consistent application;

(2)(I)1.B.(VI) The proprietary fund must use the modified accrual or accrual basis of accounting as it provides an effective measure of costs and expenditures;

(2)(I)1.B.(VII) Inventories of property and equipment should be maintained in subordinate records controlled by the general ledger and should be verified by physical inventory at least biennially;

(2)(I)1.B.(VIII) The accounting system must identify all project costs and differentiate between eligible and ineligible costs;

(2)(I)1.B.(IX) Accounts should be set up in a way to identify each organizational unit, function, or task providing services to the construction project;

(2)(I)1.B.(X) An important project management objective of the system is the derivation of information regarding actual versus budgeted costs by project task and performing organization; and

(2)(I)1.B.(XI) Financial reports should be prepared monthly to provide project managers with a timely, accurate status of the construction project and costs incurred.

(2)(I)2. Annual audits.

(2)(I)2.A. The recipient shall request an audit of the system for the preceeding fiscal year to be made by a certified public accountant or firm of certified public accountants employed for that purpose.

(2)(I)2.A.(I) The annual audit will cover in reasonable detail the operation of the proprietary system during the fiscal year.

(2)(I)2.A.(II) Within one hundred eighty (180) days after the end of the recipient's fiscal year, a copy of the annual audit will be submitted to the department.

(2)(I)2.A.(III) Annual audits shall be required as long as the recipient is in loan repayment status.

(2)(I)2.B. As required by federal law, the recipient must comply with the provisions of OMB Circular A-133 governing the audit of state and local governments.

(2)(I)2.B.(I) OMB Circular A-133 states if the recipient receives five hundred thousand dollars (\$500,000) or more in the aggregate during any fiscal year from disbursements from federal

sources, including the SRF program, the recipient will complete an audit of its system records for the fiscal year.

(2)(I)2.B.(II) A copy of the recipient's annual audit, including all written comments and recommendations of the accountant, will be furnished to the department within the time period as provided in OMB Circular A-133.

(2)(J) Record Retention Requirements.

(2)(J)1. Construction-related activities. At a minimum, the recipient must retain all financial, technical, and administrative records related to the planning, design, and construction of the project for a minimum period of seven (7) years following receipt of the final construction payment from DWRF loan program associated assistance or the recipient's acceptance of construction, whichever is later. Records shall be available to state, federal officials, or both, for audit purposes during normal business hours during that period.

(2)(J)2. Post-construction financing activities. At a minimum, the recipient must retain all financial and administrative records related to post-construction project financing for a minimum period of seven (7) years following full repayment of any assistance on the DWRF loan program project.

(2)(K) Minimum Requirements for Architectural or Engineering Contracts.

(2)(K)1. General requirements for subagreements. The subagreement must:

(2)(K)1.A. Be necessary for and directly related to the accomplishment of the project;

(2)(K)1.B. Be a lump sum or cost plus fixed fee contract in the form of a bilaterally executed written agreement;

(2)(K)1.C. Be for monetary consideration;

(2)(K)1.D. Not be in the nature of a grant or gift;

(2)(K)1.E. State a time frame for performance;

(2)(K)1.F. State a cost which cannot be exceeded except by amendment; and

(2)(K)1.G. State provisions for payment.

(2)(K)2. The nature, scope, and extent of work to be performed during construction should include, but not be limited to, the following:

(2)(K)2.A. Preparing a plan of operation if required by the department that meets the requirements of paragraph (2)(H)1. of this rule;

(2)(K)2.B. Preparing an operation and maintenance manual if required by the department that meets the requirements of paragraph (2)(H)2. of this rule;

(2)(K)2.C. Assisting the recipient in letting bids;

(2)(K)2.D. Assisting the recipient in reviewing and analyzing construction bids and making recommendations for award;

(2)(K)2.E. Inspecting during construction to ensure conformance with the construction contract documents unless waived by the department; and

(2)(K)2.F. Assisting with facility operation for purposes of certifying that the facility is operating properly one (1) year after start-up.

(2)(K)3. Executed engineering contract submittal. The final approved executed engineering contract must be submitted prior to the first reimbursement request.

(2)(L) Procurement of Engineering Services. The procurement of engineering services shall be in accordance with sections 8.285 through 8.291, RSMo.

(2)(M) Specifications. The construction specifications must contain the following:

(2)(M)1. Recipients must incorporate in their specifications a clear and accurate description of the technical requirements for the material, product, or service to be procured. The description, in competitive procurement, shall not contain features which unduly restrict competition unless the features are necessary to test or demonstrate a specific thing or to provide for interchangeability of parts and equipment. The description shall include a statement of the qualitative nature of the material, product, or service to be procured and, when necessary, shall set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use;

(2)(M)2. The recipient shall avoid the use of detailed product specifications if at all possible;

(2)(M)3. When, in the judgment of the recipient, it is impractical or uneconomical to make a clear and accurate description of the technical requirements, recipients may use a brand name as a means to define the performance or other salient requirements of an item to be procured. The recipient need not establish the existence of any source other than the named brand. Recipients must state clearly in the specification the salient requirements of the named brand which must be met by offerers and that other brands may be accepted;

(2)(M)4. Sole source restriction. A specification shall not require the use of structures, materials, equipment, or processes which are known to be available only from a sole source, unless the department determines that the recipient's engineer has adequately justified in writing to the department that the proposed use meets the particular project's minimum needs;

(2)(M)5. Experience clause restriction. The general use of experience clauses requiring equipment manufacturers to have a record of satisfactory operation for a specified period of time

or of bonds or deposits to guarantee replacement in the event of failure is restricted to special cases where the recipient's engineer adequately justifies any such requirement in writing. Where this justification has been made, submission of a bond or deposit shall be permitted instead of a specified experience period. The period of time for which the bond or deposit is required shall not exceed the experience period specified;

(2)(M)6. Domestic products procurement law. In accordance with sections 34.350-34.359, RSMo, the bid documents shall require all manufactured goods or commodities used or supplied in the performance of any contract or subcontract awarded on a loan project to be manufactured, assembled, or produced in the United States, unless obtaining American-made products would increase the cost of the contract by more than ten percent (10%);

(2)(M)7. Bonding. On construction contracts exceeding one hundred thousand dollars (\$100,000), the bid documents shall require each bidder to furnish a bid guarantee equivalent to five percent (5%) of the bid price. In addition, the bid documents must require the successful bidder to furnish performance and payment bonds, each of which shall be in an amount not less than one hundred percent (100%) of the contract price;

(2)(M)8. State wage determination. The bid documents shall contain the current prevailing wage determination issued by the Missouri Department of Labor and Industrial Relations, Division of Labor Standards, if otherwise required by law;

(2)(M)9. Small, minority, women's, and labor surplus area businesses.

(2)(M)9.A. The recipient shall take affirmative steps and the bid documents shall require the bidders to take affirmative steps to assure that small, minority, and women's businesses are used when possible as sources of supplies, construction, and services.

(2)(M)9.B. If the contractor awards subagreements, then the contractor is required to take the affirmative steps in this paragraph (2)(M)9.

(2)(M)9.C. Affirmative steps shall include the following:

(2)(M)9.C.(I) Including qualified small, minority, and women's businesses on solicitation lists;

(2)(M)9.C.(II) Ensuring that small, minority, and women's businesses are solicited whenever they are potential sources;

(2)(M)9.C.(III) Dividing total requirements, when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses;

(2)(M)9.C.(IV) Establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority, and women's businesses; and

(2)(M)9.C.(V) Using the services and assistance of the Small Business Administration and the Office of Minority Business Enterprise of the United States Department of Commerce as appropriate;

(2)(M)10. Debarment/suspension. The recipient agrees to deny participation in services, supplies, or equipment to be procured for this project to any debarred or suspended firms or affiliates in accordance with Executive Order 12549. The recipient acknowledges that doing business with any party listed on the List of Debarred, Suspended, or Voluntarily Excluded Persons may result in disallowance of project costs under the assistance agreement;

(2)(M)11. Right of entry to the project site shall be provided for representatives of the department, Environmental Improvement and Energy Resources Authority (EIERA), and U.S. Environmental Protection Agency so they may have access to the work wherever it is in preparation or progress;

(2)(M)12. The specifications must include the following statement: "The owner shall make payment to the contractor in accordance with section 34.057, RSMo";

(2)(M)13. Contractors for ARRA-funded projects must comply with the Davis-Bacon Act (40 U.S.C. 276a--276a-7). The current Davis-Bacon wage rate from the United States Department of Labor must be incorporated in the bid documents; and

(2)(M)14. Buy American provision. For ARRA-funded projects, the specifications must include the following statement or a similar statement in accordance with federal guidance: "All iron, steel, and manufactured goods used in this project must be produced in the United States unless a) a waiver is provided to the owner by the Environmental Protection Agency or b) compliance would be inconsistent with United States obligations under international agreements."

(2)(N) Construction Equipment and Supplies Procurement. This section describes the minimum procurement requirements which the recipient must use under the loan program.

(2)(N)1. Small purchases. A small purchase is the procurement of materials, supplies, and services when the aggregate amount involved in any one (1) transaction does not exceed one hundred thousand dollars (\$100,000). The small purchase limitation of one hundred thousand dollars (\$100,000) applies to the aggregate total of an order, including all estimated handling and freight charges, overhead, and profit to be paid under the order. In arriving at the aggregate amount involved in any one (1) transaction, all items which should properly be grouped together must be included. Department approval and a minimum of three (3) quotes must be obtained prior to purchase.

(2)(N)2. Bidding requirements. This paragraph applies to procurement of construction equipment, supplies, and construction services in excess of one hundred thousand dollars (\$100,000) awarded by the recipient for any project. No contract shall be awarded until the department has approved the formal advertising and bidding.

(2)(N)2.A. Formal advertising.

(2)(N)2.A.(I) Adequate public notice. The recipient will cause adequate notice to be given of the solicitation by publication in newspapers of general circulation beyond the recipient's locality (preferable statewide), construction trade journals, or plan rooms, inviting bids on the project work and stating the method by which bidding documents may be obtained or examined.

(2)(N)2.A.(II) Adequate time for preparing bids. A minimum of thirty (30) days shall be allowed between the date when public notice, publication, insertion, or document availability in a plan room is first published and the date by which bids must be submitted. ARRA-funded projects must allow a minimum of twenty-one (21) days between the date when public notice, publication, insertion, or document availability in a plan room is first published and the date by which bids must be submitted. Bidding documents shall be available to prospective bidders from the date when the notice is first published or provided. Recipients are encouraged to directly solicit bids from prospective bidders.

(2)(N)2.B. Bid document requirements and procedure.

(2)(N)2.B.(I) The recipient shall prepare a reasonable number of bidding documents (Invitations for Bids) and shall furnish them upon request on a first-come, first-served basis. The recipient shall maintain a complete set of bidding documents and shall make them available for inspection and copying by any party. The bidding documents shall include, at a minimum:

(2)(N)2.B.(I)(a) A completed statement of the work to be performed or equipment to be supplied and the required completion schedule;

(2)(N)2.B.(I)(b) The terms and conditions of the contract to be awarded;

(2)(N)2.B.(I)(c) A clear explanation of the method of bidding and the method of evaluation of bid prices and the basis and method for award of the contract or rejection of all bids;

(2)(N)2.B.(I)(d) Responsibility requirements and criteria which will be employed in evaluating bidders;

(2)(N)2.B.(I)(e) The recipient shall provide for bidding by sealed bid and for the safeguarding of bids received until public opening;

(2)(N)2.B.(I)(f) If a recipient desires to amend any part of the bidding documents during the period when bids are being prepared, addenda shall be communicated in writing to all firms which have obtained bidding documents in time to be considered before the bid opening time. All addenda must be approved by the department prior to award of the contract;

(2)(N)2.B.(I)(g) A firm which has submitted a bid shall be allowed to modify or withdraw its bid before the time of bid opening;

(2)(N)2.B.(I)(h) The recipient shall provide for a public opening of bids at the place, date, and time announced in the bidding documents. Bids received after the announced opening time shall be returned unopened;

(2)(N)2.B.(I)(i) Award shall be to the lowest, responsive, responsible bidder. After bids are opened, the recipient shall evaluate them in accordance with the methods and criteria set forth in the bidding documents. The recipient shall award contracts only to responsible contractors that possess the potential ability to perform successfully under the terms and conditions of a proposed contract. A responsible contractor is one that has financial resources, technical qualifications, experience, organization, and facilities adequate to carry out the contract or a demonstrated ability to obtain these. The recipient may reserve the right to reject all bids. Unless all bids are rejected for good cause, award shall be made to the lowest responsive, responsible bidder. The recipient shall have established protest provisions in the specifications. These provisions shall not include the department as a participant in the protest procedures. If the recipient intends to make the award to a firm which did not submit the lowest bid, the recipient shall prepare a written statement before any award, explaining why each lower bidder was deemed nonresponsible or nonresponsive and shall retain the statements in its files. The recipient shall not reject a bid as nonresponsive for failure to list or otherwise indicate the selection of subcontractor(s) or equipment unless the recipient has clearly stated in the solicitation documents that the failure to list shall render a bid nonresponsive and shall cause rejection of a bid;

(2)(N)2.B.(I)(j) The recipient is encouraged though not required to use the model specification clauses developed by the department; and

(2)(N)2.B.(I)(k) Departmental concurrence with contract award must be obtained prior to actual contract award. Recipients shall notify the department in writing of each proposed construction contract which has an aggregate value over one hundred thousand dollars (\$100,000). The recipient shall notify the department within ten (10) calendar days after the bid opening for each construction subagreement. The notice shall include:

(2)(N)2.B.(I)(k)I. Proof of advertising;

(2)(N)2.B.(I)(k)II. Tabulation of bids;

(2)(N)2.B.(I)(k)III. The bid proposal from the bidder that the recipient wishes to accept, including justification if the recommended successful bidder is not also the lowest bidder;

(2)(N)2.B.(I)(k)IV. Recommendation of award;

(2)(N)2.B.(I)(k)V. Any addenda not submitted previously and bidder acknowledgment of all addenda;

(2)(N)2.B.(I)(k)VI. Copy of the bid bond;

(2)(N)2.B.(I)(k)VII. One (1) set of as-bid specifications;

(2)(N)2.B.(I)(k)VIII. Suspension/Debarment Certification;

(2)(N)2.B.(I)(k)IX. Revised financial capability worksheet and certification if bids exceed prebid estimates by more than fifteen percent (15%);

(2)(N)2.B.(I)(k)X. MBE/WBE Worksheet;

(2)(N)2.B.(I)(k)XI. Recipient's statement that proposed contractor(s) positive efforts, MBE/WBE utilization, or both, have been reviewed and meet regulatory requirements;

(2)(N)2.B.(I)(k)XII. Site certification, if not previously submitted; and

(2)(N)2.B.(I)(k)XIII. For equivalency projects, Certification of Nonsegregated Facilities.

(2)(O) Conflict of Interest.

(2)(O)1. No employee, officer, or agent of the recipient shall participate in the selection, award, or administration of a subagreement supported by state or federal funds if a conflict of interest, real or apparent, would be involved. This conflict would arise when--

(2)(O)1.A. Any employee, officer, or agent of the recipient, any member of their immediate families, or their partners have a financial or other interest in the firm selected for a contract; or

(2)(O)1.B. An organization which may receive or has been awarded a subagreement employs, or is about to employ, any person listed in subparagraph (2)(O)1.A. of this rule.

(2)(O)2. The recipient's officers, employees, or agents shall neither solicit nor accept gratuities, favors, or anything of substantial monetary value from contractors, potential contractors, or other parties to subagreements.

(2)(P) Changes in Contract Price or Time. The contract price or time may be changed only by a change order. The value of any work covered by a change order or of any claim for increase or decrease in the contract price shall be determined by the methods set forth in the following:

(**2**)(**P**)1. Unit prices.

(2)(P)1.A. Unit prices previously approved are acceptable for pricing changes of original bid items. However, when changes in quantities exceed fifteen percent (15%) of the original bid quantity and the total dollar change of that bid item is greater than twenty-five thousand dollars (\$25,000), the recipient shall review the unit price to determine if a new unit price should be negotiated.

(2)(P)1.B. Unit prices of new items shall be negotiated;

(2)(P)2. A lump sum to be negotiated; and

(2)(P)3. Cost reimbursement. The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work plus an amount to cover the cost of general overhead and profit.

(2)(Q) Progress Payments to Contractors.

(2)(Q)1. Recipients should make prompt progress payments to prime contractors and prime contractors should make prompt progress payments to subcontractors and suppliers for eligible construction, supplies, and equipment costs.

(2)(Q)1.A. For purposes of this section, progress payments are defined as follows:

(2)(Q)1.A.(I) Payments for work in place; and

(2)(Q)1.A.(II) Payments for materials or equipment which have been delivered to the construction site or which are stockpiled in the vicinity of the construction site in accordance with the terms of the contract, when conditional or final acceptance is made by or for the recipient. The recipient shall assure that items for which progress payments have been made are adequately insured and are protected through appropriate security measures.

(2)(Q)2. Appropriate provisions regarding progress payments must be included in each contract and subcontract.

(2)(Q)3. Retention from progress payments. The recipient may retain a portion of the amount otherwise due the contractor. The amount the recipient retains shall be in accordance with section 34.057, RSMo.

(2)(R) Classification of Costs. The information in this section represents policies and procedures for determining the eligibility of project costs for assistance under programs supported by the loan program.

(2)(**R**)1. All project costs will be eligible if they meet the following tests:

(2)(R)1.A. Reasonable and cost effective;

(2)(R)1.B. Necessary for the approved project including required mitigation; and

(2)(R)1.C. Meet the eligibility requirements of the federal Safe Drinking Water Act.

(2)(**R**)2. Eligible costs include, at a minimum:

 $(2)(\mathbf{R})2$. A. Engineering services and other services incurred in planning and in preparing the design drawings and specifications for the project. These services and their related expenses can be reimbursed based on actual invoices to be submitted after loan closing or by means of an allowance. For invoice reimbursement, the department must have a copy of the executed engineering contract for planning and design of the project;

 $(2)(\mathbf{R})2.\mathbf{B}$. The reasonable cost of engineering services incurred during the building and initial operation phase of the project to ensure that it is built in conformance with the design drawings and specifications. A registered professional engineer licensed in Missouri or a person under the direction and continuing supervision of a registered professional engineer licensed in Missouri must provide inspection of construction for the purpose of ensuring and certifying compliance

with the approved plans and specifications. Eligible construction phase and initial operation phase service are limited to:

(2)(R)2.B.(I) Office engineering;

(2)(R)2.B.(II) Construction surveillance;

(2)(R)2.B.(III) Stakeout surveying;

(2)(R)2.B.(IV) As-built drawings;

(2)(R)2.B.(V) Special soils/materials testing;

(2)(**R**)2.**B**.(VI) Operation and maintenance manual;

(2)(**R**)2.**B**.(VII) Follow-up services and the cost of start-up training for operators of mechanical facilities constructed by the project to the extent that these costs are incurred prior to this department's final inspection. Costs shall be limited to on-site operator training tailored to the facilities constructed or on- or off-site training may be provided by the equipment manufacturer if this training is properly procured;

(2)(R)2.B.(VIII) User charge ordinance; and

(2)(R)2.B.(IX) Plan of operation;

(2)(**R**)2.C. Abandoning costs. The reasonable and necessary cost of abandoning drinking water facilities no longer in use. Generally, these costs will be limited to the demolition and disposal of the structures, and abandoning unused wells in accordance with <u>10 CSR 23-3.110</u>, and final grading and seeding of the site;

(2)(**R**)2.D. Change orders and the costs of meritorious contractor claims for increased costs under subagreements as follows:

(2)(**R**)2.**D**.(I) Within the allowable scope of the project;

(2)(R)2.D.(II) Costs of equitable adjustments due to differing site conditions; and

(2)(**R**)2.D.(III) Settlements, arbitration awards, and court judgments which resolve contractor claims shall be allowable only to the extent that they are not due to the mismanagement of the recipient;

(2)(**R**)2.E. Costs necessary to mitigate only direct, adverse, physical impacts resulting from building of the treatment works;

(2)(**R**)2.F. The costs of site screening necessary to comply with environmental studies and facilities plans or necessary to screen adjacent properties;

(2)(R)2.G. Equipment, materials, and supplies.

(2)(**R**)2.G.(I) The cost of a reasonable inventory of laboratory chemicals and supplies necessary to initiate plant operations and laboratory items necessary to conduct tests required for plant operation.

(2)(R)2.G.(II) Cost of shop equipment installed at the public water system necessary to the operation of the works.

(2)(**R**)2.G.(III) The costs of necessary safety equipment, provided the equipment meets applicable federal, state, local, or industry safety requirements.

(2)(**R**)2.G.(IV) The costs of mobile equipment necessary for the operation of the overall public water system, or for the maintenance of equipment. These items include: portable standby generators; large portable emergency pumps; trailers and other vehicles having as their purpose the transportation or application, or both, of liquid or dewatered water treatment plant residuals; and replacement parts identified and approved in advance;

(2)(**R**)2.H. Costs of royalties for the use of or rights in a patented process or product with the prior approval of the department;

(2)(**R**)2.I. Land or easements when the acquisition of real property or interests therein is integral to a project authorized by section 1452(a)(2) of the federal Safe Drinking Water Act and the purchase is from a willing seller. Land must be purchased in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, P.L. 91-646, as amended, and certification by the recipient of compliance with the Uniform Relocation and Real Property Acquisition?

(2)(**R**)2.J. Force account work for construction oversight and engineering planning and design. If force account is used for planning and design, all engineering services during construction must be provided through force account;

(2)(**R**)2.K. The cost of preparing an environmental impact statement if required under <u>10 CSR</u> <u>60-13.030</u>;

(2)(R)2.L. Costs of issuance, capitalized interest, EIERA application fees, and contracted project administration costs; and

(2)(R)2.M. Debt service reserve deposits.

(2)(R)3. Noneligible costs include, but are not limited to:

(2)(**R**)3.A. The cost of ordinary site and building maintenance equipment such as lawnmowers and snowblowers;

(2)(**R**)**3.**B. The cost of general purpose vehicles for the transportation of the recipient's employees;

(2)(R)3.C. Costs allowable in subparagraph (2)(R)2.I of this rule that are in excess of just compensation based on the appraised value;

(2)(**R**)3.D. Ordinary operating expenses of the recipient including salaries and expenses of elected and appointed officials and preparation of routine financial reports and studies, and any permit fees necessary for the normal operation of the constructed facility;

(2)(**R**)3.E. Preparation of applications and permits required by federal, state, or local regulations or procedures;

(2)(**R**)3.F. Administrative, engineering, and legal activities associated with the establishment of special departments, agencies, commissions, regions, districts, or other units of government;

(2)(R)3.G. Personal injury compensation or damages arising out of the project;

(2)(**R**)3.H. Fines and penalties due to violations of, or failure to comply with, federal, state, or local laws, regulations, or procedures;

(2)(R)3.I. Costs outside the scope of the approved project;

(2)(**R**)3.J. Costs for which grant or loan payment have been or will be received from another state or federal agency;

(2)(R)3.K. Force account work except that listed in subparagraph (2)(R)2.J. of this rule; and

(2)(R)3.L. Costs associated with acquisition of easements and land except that listed in subparagraph (2)(R)2.I.

(3) Project By-Pass, Project Removal and Modification of Funding. This section applies to loan applicants on the fundable priority list. In order to assure best use of the loan funds in a reasonably expeditious manner, projects may be by-passed or removed from the fundable priority list or loan amounts may be modified. The department will confer and negotiate with affected applicants prior to making or recommending decisions on project by-pass, project removal or modification of loan amounts.

(3)(A) Project By-Pass.

(3)(A)1. Eligibility for by-pass. The Safe Drinking Water Commission (the commission) may by-pass any project on the fundable priority list which is not, in the opinion of the commission, making satisfactory progress toward satisfying requirements for drinking water revolving fund (DWRF) assistance.

(3)(A)2. By-pass criteria. In determining if a project should be by-passed the commission shall use the criteria listed in this subsection.

(3)(A)2.A. Any project on the fundable priority list may be by-passed if the applicant fails to submit the documents required for DWRF assistance at least sixty (60) days prior to the beginning of the quarter for which the assistance is anticipated.

(3)(A)2.B. The commission may use individual schedules developed by the department to determine whether a DWRF project is making satisfactory progress during the fiscal year. A project may be by-passed for failure to meet the schedule.

(3)(A)3. By-pass procedures.

(3)(A)3.A. By-passed projects will be removed from the fundable priority list and, if the application is still valid, will be placed on a project list, in priority order, for funding consideration in the next federal fiscal year.

(3)(A)3.B. Funds recovered through project by-pass will be considered uncommitted and available for distribution to the next priority project in accordance with the requirements of section 640.107, RSMo.

(3)(B) Project Removal. Projects may be removed from the fundable priority list at the request of the applicant, upon a finding by the department that the project is ineligible for DWRF assistance, or upon a finding that the applicant's credit is not adequate for participation in the DWRF loan program.

(**3**)(C) Modification of Funding.

(3)(C)1. In order to maximize use of the aggregate funds available to the state for drinking water infrastructure improvements, the commission may remove projects or modify funding amounts upon a finding by the department that the applicant is eligible for funding from other government programs (such as USDA Rural Development, the Department of Economic Development's Community Development Block Grant program, or the Environmental Improvement and Energy Resources Authority). The department will coordinate with the other funding agencies to arrive at equitable and workable funding options for the applicant.

(3)(C)2. The department reserves the right to limit the maximum loan amount awarded. If utilized, the amount of the maximum loan limit will be addressed in the annual intended use plan and will be open for public comment.

(4) Leveraged Loans.

(4)(A) This section describes the leveraged loan process and contains additional requirements for recipients of a leveraged loan under the Drinking Water Revolving Fund established in section 640.107, RSMo as a subfund of the Water and Wastewater Loan Fund. All other requirements

also apply, including administrative fees in subsection (2)(B) of this rule, except for section (5) which applies specifically to DWRF direct loans.

(4)(B) General Description.

(4)(B)1. This rule sets out the general format for the leveraged loan program. The commission, the department and the Environmental Improvement and Energy Resources Authority (EIERA) shall have the authority to make specific refinements, variations or additional requirements as may be necessary or desirable in connection with the efficient operation of the leveraged loan program.

(4)(B)2. The leveraged loan program is designed to maximize the funding available to make loans to recipients for the planning, design and construction of eligible projects. The EIERA will participate in the leveraged loan program by issuing its bonds or notes in accordance with its governing statute. The determination as to whether a recipient shall receive a leveraged loan under this rule shall be made in accordance with <u>10 CSR 60-13</u> and shall be subject to the approval of the EIERA.

(4)(B)3. Under the leveraged loan program, the recipient must obtain construction funds and any needed financing from EIERA. The recipient will receive a loan from the Drinking Water Revolving Fund which will be placed in a debt service reserve fund to secure the construction loan. The interest earnings on the debt service reserve fund will provide a subsidy by paying a portion of the interest costs of the EIERA bonds or notes used to provide the construction loan. The principal amount of the loan will be repaid to the DWRF.

(4)(C) Target Interest Rate. The target interest rate (TIR) shall be established by the department in consultation with the EIERA based upon current economic factors, projected fund utilization, deposits in the subfund, and actual or anticipated federal capitalization grants. The department will use the Twenty-Five Bond Revenue Index as published in *The Bond Buyer* (or any successor publication) as the basis for determining the TIR. The department reserves the right to refinance, assign, pledge, or leverage any loans originated under this subsection.

(4)(C)1. The TIR for all assistance provided under the leveraged loan program shall not be less than thirty percent (30%) of the weekly Twenty-Five Bond Revenue Index as published in *The Bond Buyer* (or any successor publication) the week preceding funding, rounded up to the nearest one one hundredth (0.01) of one percent (1%). The Safe Drinking Water Commission (SDWC) shall not undertake project-by-project revisions.

(4)(C)2. The TIR for all assistance provided under section (5), DWRF Direct Loans, shall not be less than thirty percent (30%) of the weekly Twenty-Five Bond Revenue Index as published in *The Bond Buyer* (or any successor publication) the week preceding funding, rounded up to the nearest one one hundredth (0.01) of one percent (1%). The commission may reduce the interest rate to meet the needs of the applicant. In order to reduce the interest rate, the commission must determine that unique or unusual circumstances exist. In addition, the commission may reduce the interest rate for projects impacting enterprise zones as authorized under state law.

(4)(C)3. A disadvantaged community may receive a further reduction in the TIR as determined by the SDWC. A disadvantaged community is defined, for the purpose of reducing the TIR, as an applicant that:

(4)(C)3.A. Has a population of three thousand three hundred (3,300) or less based on the most recent decennial census;

(4)(C)3.B. Has a median household income at or below seventy-five percent (75%) of the state average median household income as determined by the most recent decennial census; and

(4)(C)3.C. Has an average water user charge for five thousand (5,000) gallons that is at least two percent (2%) of the median household income of the applicant.

(4)(C)4. For projects funded by the ARRA, the Safe Drinking Water Act as amended, or any subsequent federal act, additional subsidization (such as principal forgiveness, negative interest loans, grants, or the like) may be provided as federal law requires or allows.

(4)(D) Additional Application Requirements.

(4)(D)1. Financial disclosure. Loan applicants shall provide upon request any detailed financial information as may be required to determine the applicant's eligibility for the leveraged loan program.

(4)(D)2. Other financing. In addition to the application requirements in this rule, leveraged loan recipients must provide a description of the proposed method of obtaining any necessary financing for costs not being financed by the DWRF loan program, including information regarding the applicant's progress toward obtaining the funds and assistance.

(4)(E) DWRF Leveraged Loan Structure.

(4)(E)1. As each leveraged loan is made, the loan from the DWRF will be used to fund a debt service reserve. The loan from the DWRF will be paid in one (1) or more installments by deposit to the debt service reserve fund on behalf of the recipient. Interest earnings on the debt service reserve fund will pay a portion of the interest costs of the EIERA bonds or notes used to provide the construction loan. DWRF loans deposited to the debt service reserve fund shall bear an interest rate of zero percent (0%).

(4)(E)2. Recipients will be charged a fee on the loan in accordance with section 644.106, RSMo and a subsidized interest rate.

(4)(E)3. Loans shall be sized to provide an estimated subsidy adequate to reduce the net interest cost of the EIERA loan to the target interest rate (TIR).

(4)(F) Construction Loan Fund. Net proceeds from the sale of any project bonds or notes issued by the EIERA for eligible project costs shall be used to fund construction of the project. These

proceeds shall be deposited with a construction loan trustee and disbursed as construction progresses pursuant to subsection (4)(I) of this rule.

(4)(G) Alternative Leveraged Loan Structure. If financial market conditions dictate, an alternative leveraging structure may be implemented. Alternative leveraging structures will be developed by the department in consultation with the commission and the EIERA. The alternative structure, so developed, will be included in the annual intended use plan.

(4)(H) Loan Agreements. In addition to the other requirements of this rule, the department and the EIERA may require the recipient to include assurances and certifications in the loan agreements and bond resolutions deemed necessary to protect the interest of the state and the EIERA and to comply with federal requirements.

(4)(I) Disbursement from Loan Proceeds. The recipient shall request payments from the construction loan fund, which shall include the information listed in this subsection (4)(I) and other information deemed necessary and approved by the EIERA to ensure proper project management and expenditure of public funds.

(4)(I)1. Completed reimbursement request form.

(4)(I)2. Construction pay estimates signed by the construction contractor, the recipient, and the resident inspector, if applicable.

(4)(I)3. Invoices for other eligible services, equipment, and supplies for the project.

(4)(I)4. Any other documentation required under the provisions of the trust indenture.

(4)(J) Amortization Schedules. The EIERA shall establish amortization schedules for long-term loans awarded under this rule. Repayment of principal shall begin not later than one (1) year after initiation of operation. The loans shall be fully repaid in no more than twenty (20) years after initiation of operation.

(4)(K) Loan Repayment.

(4)(K)1. Repayment of principal and penalties to the DWRF loan program will be made by the release of money from the debt service reserve fund. If funds for these payments are not available in the debt service reserve, then the payment shall be made from other funds of the recipient.

(4)(K)2. Repayment of principal and interest on the EIERA bonds or notes will be paid from revenues of the user charge system or from another dedicated source of revenue as may be designated in the applicable bond resolutions or loan agreements.

(5) DWRF Direct Loans.

(5)(A) General.

(5)(A)1. This section describes the process and requirements for direct loans awarded under this rule. All other requirements also apply, including administrative fees in subsection (2)(B) of this rule, except for subsection (2)(A) and section (4) of this rule which pertain to leveraged loans.

(5)(A)2. This rule sets out the general format for the direct loan program. The commission and the department shall have the authority to make specific refinements, variations, or additional requirements as may be necessary or desirable in connection with the efficient operation of the direct loan program.

(5)(A)3. The department may make direct loans by purchasing the general obligation bonds, revenue bonds, short-term notes, or other acceptable obligation of any qualified applicant for the planning, design, and/or construction of an eligible project. These loans shall not exceed the total eligible project costs described in subsection (2)(R) of this rule less any amounts finalized by any means other than through the direct loan program. The department is not required to offer direct loans to Drinking Water Revolving Fund Loan Program applicants.

(5)(B) Letter of Intent. The department will issue a letter of intent to make a direct loan when the application documents are approved and the commission approves the project for receipt of loan funds. The letter of intent shall state the amount of funds reserved for the project, the requirements to qualify for receipt of loan funds, and the schedule for the applicant to meet all requirements. The department may terminate this letter of intent for failure to meet the schedule requirements or conditions of the letter of intent. The amount of assistance stated in the letter of intent may be adjusted to reflect actual costs and the availability of funds.

(5)(C) Construction Loans. The department may award construction loans to qualified applicants in order to provide interim financing during construction of their project. Construction loans may contain clauses and provisions determined by the department to be necessary to protect the interests of the state.

(5)(C)1. With exception of substate revolving funds, the construction loan will remain in force throughout the construction period. However, it must be paid in full no later than the closing deadline provided in the construction loan agreement.

(5)(C)2. If the department is to provide long-term financing under this rule, then the construction loan must contain an agreement by the department and the recipient that the department will purchase the recipient's general obligation bonds, revenue bonds, or other acceptable debt obligation after construction is completed. If a construction loan is awarded, the permanent financing amount will be limited in amount to the sum of the payments drawn from the construction loan for eligible project costs plus interest accrued on the construction loan plus the reasonable costs of issuance which can be financed under Missouri statutes.

(5)(C)3. Unless specifically addressed in the loan documents, the recipient may request construction loan payments no more often than monthly. The maximum construction advance shall be the sum of all eligible costs incurred to date. Each payment request shall include the following information:

(5)(C)3.A. Completed reimbursement request form;

(5)(C)3.B. Construction pay estimates signed by the construction contractor, the recipient, and the resident inspector, if applicable;

(5)(C)3.C. Invoices for other eligible services, equipment, and supplies for the project; and

(5)(C)3.D. Any other information deemed necessary by the department to ensure proper project management and expenditure of public funds.

(5)(C)4. If the department is satisfied that the payment request accurately reflects the eligible cost incurred to date on the project, the department will request that a state payment check be issued to the recipient.

(5)(D) The department may require the recipient to contract with a trustee or paying agent to provide all or part of the following services:

(5)(D)1. Make joint assistance payments to the recipients and their contractors;

(5)(D)2. Ensure that payments are only released to those recipient's whose contractors have a project contract approved by the department;

(5)(D)3. Ensure that none of the recipient's contractors receive more in assistance payments than approved by the department; and

(5)(D)4. Maintain financial records of credits and debits for the construction project.

(5)(E) Purchase of Obligations. The department shall purchase revenue bonds, general obligation bonds, or other acceptable debt obligations from the recipient no later than the closing deadline contained in the construction loan agreement. In addition to the requirements of this rule, the department may require the recipient to include those assurances and clauses in the loan agreements and bond resolutions as deemed necessary to protect the interest of the state.

(5)(F) Amortization Schedules. The department shall use the following guidelines to establish amortization schedules for obligations purchased under this rule:

(5)(F)1. The bonds, notes, or other debt obligations shall be fully amortized in no more than twenty (20) years after initiation of operation;

(5)(F)2. The payment frequency on any debt obligations shall be no less than annual with the first payment no later than one (1) year after the initiation of operation;

(5)(F)3. The amortization schedule may either be straight line or declining schedules for the term of the debt obligation; and

(5)(F)4. Repayment of principal shall begin not later than one (1) year after initiation of operation.

(5)(G) If at any time during the loan period the facility(ies) financed under this rule is sold, either outright or on contract for deed, the loan becomes due and payable upon transfer unless otherwise approved by the department.

(6) Additional Subsidization. Recipients of financial assistance provided from the ARRA shall meet the applicable federal law, regulation, and guidance applicable to those funds. Additional subsidization may be in the form of forgiveness of principal, negative interest loans, or grants, or any combination of these. The TIR for ARRA-funded projects will initially be calculated as directed in subsection (4)(C) above.

10 CSR 60-13.025 State Loan Program

PURPOSE: This rule establishes requirements for loans from state funding for financing construction improvements at public water systems.

(1) General Requirements.

(1)(A) The department may make direct loans to public water systems by purchasing the general obligation bonds, revenue bonds, short-term notes or other acceptable obligation of any qualified applicant for the planning, design or construction, or any combination of these, of an eligible project.

(1)(B) In addition to the requirements of this rule, the department may require the recipient to include those assurances and clauses in the loan agreements and bond resolutions as deemed necessary to protect the interest of the state and comply with applicable state and federal requirements.

(1)(C) If at any time during the loan period the facility(ies) financed under this rule is sold, either outright or on contract for deed, the loan becomes due and payable upon transfer unless otherwise approved by the department.

(1)(D) This rule sets out the general format for loans from state funds. The commission and the department shall have the authority to make specific refinements, variations or additional requirements as may be necessary or desirable in connection with the efficient operation of the loan process.

(1)(E) If at any time during the loan period the facility financed under this rule is sold, either outright or on contract for deed, the loan becomes due and payable upon transfer unless otherwise approved by the department.

(2) Eligibility.

(2)(A) Eligible Systems. Public water supply districts and rural community water systems located in Missouri are eligible to apply. Eligibility to apply does not guarantee assistance or eligibility for assistance.

(2)(B) Eligible Projects.

(2)(B)1. Assistance may be provided for expenditures (not including monitoring, operation, and maintenance expenditures) of a type or category which will facilitate compliance with national primary drinking water regulations applicable to the system or otherwise significantly further the health protection objectives of the federal Safe Drinking Water Act (SDWA).

(2)(B)2. Projects to address federal SDWA health standards identified in the intended use plan or in the loan priority point criteria that have been exceeded and projects to prevent future violations of the rules are eligible for funding. These include projects to maintain compliance with existing regulations for contaminants with acute health effects (such as the Surface Water Treatment Rule, the Total Coliform Rule, and nitrate standard) and regulations for contaminants with chronic health effects (such as Lead and Copper Rule, Phases I, II, and V Rules, and safety standards for total trihalomethanes, arsenic, barium, cadmium, chromium, fluoride, mercury, selenium, combined radium-226, -228, and gross alpha particle activity).

(2)(B)3. Projects to address imminent federal SDWA health standards (identified in the annual intended use plan) that have been exceeded or to prevent future violations of the anticipated rules are eligible for funding.

(2)(B)4. Projects to replace aging infrastructure are eligible if they are needed to maintain compliance or further the public health protection objectives of the federal SDWA. Examples of these include projects to:

(2)(B)4.A. Rehabilitate or develop sources to replace contaminated sources or sources of inadequate capacity;

(2)(B)4.B. Install or upgrade treatment facilities if, in the department's opinion, the project would improve the quality of drinking water to comply with primary or secondary standards;

(2)(B)4.C. Install or upgrade storage facilities, including finished water reservoirs, to prevent microbiological contaminants from entering the water system or improve water pressure to safe levels; and

(2)(B)4.D. Install or replace transmission and distribution pipes to prevent contamination caused by leaks or breaks in the pipe, or improve water pressure to safe levels.

(2)(B)5. Projects to consolidate water supplies (for example, when individual homes or other public water supplies have a water supply that is contaminated, or the system is unable to maintain compliance for financial or managerial reasons) are eligible for loan assistance.

(2)(B)6. The purchase of a portion of another system's capacity is eligible for a loan if it is the most cost-effective solution.

(3) Application Procedures.

(3)(A) Applicants must have previously submitted a preliminary project proposal on forms provided by the department by the deadline established by the department and have received an invitation from the department to apply for financial assistance.

(3)(B) Applications must be postmarked or received by the Public Drinking Water Program by the calendar date established in the annual application package as the application deadline. The department may extend this deadline if insufficient applications are received to use all of the funds expected to be available. Applicants shall provide:

(3)(B)1. A completed application form provided by the department;

(3)(B)2. Documentation that they have a chief operator certified at the appropriate level, or expect to have prior to loan award;

(3)(B)3. Documentation that they have an emergency operating plan, or expect to have prior to loan award;

(3)(B)4. Any additional information requested by the department for priority point award or project evaluation;

(3)(B)5. Any additional information request by the department to determine the applicant's compliance history and technical, managerial and financial capacity; and

(3)(B)6. Any additional information for determination of financial capability of the applicant. This may include but is not limited to: changes in economic growth, changes in population growth, depreciation, existing debt, revenues, project costs, and effects of the project on user charge rates.

(3)(C) Unsuccessful applicants requesting funds during a given fiscal year who have completed the requirements in subsection (3)(B) of this rule shall be considered for funding the next fiscal year and need not reapply.

(3)(D) By submission of its application, the applicant certifies and warrants that the applicant has not, nor will through the loan amortization period, violate any of its bond covenants.

(4) Evaluation and Priority Point Award.

(4)(A) Projects will be assigned priority points in accordance with the Drinking Water Revolving Fund (DWRF) loan priority point criteria approved by the commission under 10 CSR 60-13.020(1)(E)1. Projects will be listed in priority order according to the number of priority points

assigned to the project. Projects accumulating the same total number of priority points will be ranked using the tie-breaking criteria in the DWRF loan priority point criteria.

(4)(B) The department shall prepare and seek public comment on an annual intended use plan that includes the list of proposed projects. The commission may hold one or more public meetings or public hearings on the intended use plan for loans. Any applicant aggrieved by his/her standing may appeal to the commission during the public comment process.

(4)(C) No direct loan assistance shall be provided to a public water system that does not have the technical, managerial, and financial (TMF) capacity to ensure compliance with the federal SDWA, unless the owner or operator of the system agrees to undertake feasible and appropriate changes to ensure that the system has TMF capacity.

(4)(D) No direct loan assistance shall be provided to a public water system that is in significant noncompliance with any requirement of a national primary drinking water regulation or variance unless use of the assistance will ensure compliance.

(5) Loan Fees. The department may charge annual loan fees not to exceed one percent (1%) of the outstanding loan balance of each loan. These fees are intended to reimburse the department for the costs of loan origination, loan servicing and administration of the program. In addition to this fee, additional administrative fees may be assessed by the department at the time the administration fee is calculated for failure by a recipient to submit approved documents to the department (examples include but may not be limited to: operation and maintenance manuals, plan of operation, enacted user charge and water-use ordinances and executed contract documents) in accordance with the time frames provided under the agreement entered into by the recipient. The additional fee will be an additional one-tenth percent (.1%) per month that the document remains delinquent. The additional fee will be collected only during the year in which the document is not submitted.

(6) Interest Rates.

(6)(A) The interest rate charged by the department on direct loans will not be less than zero percent (0%) nor more than market rate as determined by the Twenty-Five Revenue Bond Index published by the Bond Buyers Index of Twenty Bonds rounded to the nearest one-tenth (0.1) of one percent (1%). The department will use the Twenty-Five Revenue Bond Index most recently published prior to the date on which the project assistance is provided for all loans except those secured by general obligation bonds. For these transactions, the rate published immediately preceding filing with the State Auditor's Office will be used.

(6)(B) Interest on construction loans will begin accruing on the last day of the month in which a construction advance is made and will be compounded at the end of each month after that until such time as the construction loan along with all interest accrued is paid in full.

(7) Amortization Schedules. The department shall use the following guidelines to establish amortization schedules for obligations purchased under this rule:

(7)(A) The bonds, notes or other debt obligations shall be fully amortized in no more than twenty (20) years after initiation of operation;

(7)(B) The payment frequency on any debt obligations shall be no less than semiannual with the first payment no later than one (1) year after the initiation of operation;

(7)(C) The amortization schedule may either be straightline or declining schedules for the term of the debt obligation; and

(7)(D) Repayment of principal shall begin not later than one (1) year after initiation of operation.

(7)(E) If the department is the bond owner, the participant's bonds may be called and reissued.

(8) Requirements for Loan Recipients.

(8)(A) Project Design. Design of projects for community water systems shall conform with accepted engineering practices. A preliminary design submittal, including the design criteria and facilities layout sheet, may be required at approximately the twenty percent (20%) design stage.

(8)(B) Public Participation. The public must be allowed an opportunity to exchange ideas with the applicant during project development. Public participation must be preceded by timely distribution of information and must occur sufficiently in advance of decision making to allow the recipient to assimilate public views into action.

(8)(B)1. A public meeting shall be conducted to discuss the alternative engineering solutions.

(8)(B)2. Prior to approval of the draft user charge ordinance, a public meeting shall be conducted to address the proposed user charge rates. Public notice of the meeting should be published at least thirty (30) days prior to the meeting date in one (1) or more local newspaper, as needed to cover the project service area. The recipient shall prepare a transcript, recording or other complete record of the proceeding along with proof of publication and submit it to the department and make it available at no more than cost to anyone who requests it. A copy of the record should be available for public review.

(8)(C) Binding Commitment. In order for the department to offer to enter into a binding commitment, all documents and information required here must be submitted to the department at least sixty (60) days prior to the applicant's binding commitment deadline established by the department.

(8)(C)1. Engineering report.

(8)(C)1.A. Engineering reports must be in accordance with accepted engineering practices and applicable rules. References such as the current Design Guide for Community Water Systems and Ten State Standards should be considered as design standards.

(8)(C)1.B. The most feasible, economic and environmentally sound alternatives for providing safe drinking water must be studied and evaluated.

(8)(C)1.C. An estimate of the average user charge including documentation of the basis of the estimate must be included.

(8)(C)1.D. An assessment of the environmental conditions and impact of the proposed project on the environment is required.

(8)(C)2. Detailed project budget.

(8)(C)3. Project schedule.

(8)(C)3.A. Construction start defined as date of issuance of notice to proceed.

(8)(C)3.B. Construction completion.

(8)(C)3.C. Initiation of operation.

(8)(C)3.D. Project completion.

(8)(D) Loan Closing. After the department has entered into a binding commitment with the applicant and the requirements of subsections (8)(B) and (8)(C) have been met, the following additional requirements must be met before loan closing can occur. All documents and information must be submitted to the department in sufficient time to allow adequate time for review and must be approved sixty (60) days prior to the loan closing date established by the department. The department may extend deadlines if justified.

(8)(D)1. Final document submittal. The following documents must be submitted to and approved by the department:

(8)(D)1.A. Resolution identifying the authorized representative by name. Applicants for assistance shall provide a resolution by the governing body designating a representative authorized to file the application for assistance, reimbursement requests and act in behalf of the applicant in all matters related to the project;

(8)(D)1.B. Any and all changes to the proposed project schedule;

(8)(D)1.C. Draft engineering contract as described in this rule;

(8)(D)1.D. Plans and specifications certified by a registered professional engineer licensed in Missouri;

(8)(D)1.E. Certification of easements and real property acquisition. Recipients of assistance shall have obtained title or option to the property or easements for the project prior to loan closing;

(8)(D)1.F. Draft user charge and water use ordinances as described in this rule; and

(8)(D)1.G. Other information or documentation deemed necessary by the applicant or the department to ensure the proper expenditure of loan funds.

(8)(D)2. Projects serving multiple water systems. Prior to closing, if the project serves two (2) or more public water systems, the applicant shall submit executed agreements or contracts between the public water systems for the financing, construction and operation of the proposed facilities. At a minimum, the agreement or contract shall include:

(8)(D)2.A. The operation and maintenance responsibilities of each party upon which the costs are allocated;

(8)(D)2.B. The formula by which the costs are allocated; and

(8)(D)2.C. The manner in which the costs are allocated.

(8)(D)3. User charge (water rate) ordinance.

(8)(D)3.A. Loan recipients are required to maintain, for the useful life of the project, user charge ordinances approved by the department. User charge ordinances, at a minimum, shall be adopted prior to financing and implemented by the initiation of operation of the financed project. A copy of the enacted ordinances shall be submitted prior to initiation of operation.

(8)(D)3.B. The user charge system shall be designed to produce adequate revenues required for the operation and maintenance, including a reserve for equipment replacement. It shall be proportional and based upon actual use. A one hundred ten percent (110%) debt service reserve may be required. Each user charge system shall include an adequate financial management system that will accurately account for revenues generated by the system, debt service and loan fee costs and expenditures for operation and maintenance, including replacement based on an adequate budget identifying the basis for determining the annual operation and maintenance costs and the costs of personnel, material, energy and administration. The user charge system shall provide that the costs of operation and maintenance not directly attributable to users be distributed equally among the users. The system shall provide for an annual review of charges.

(8)(D)4. Additional requirements for privately-owned public water systems. Privately-owned public water systems must provide documentation from the Missouri Department of Economic Development showing an allocation under Missouri's private activity bond cap and must obtain any necessary approvals from the Public Service Commission.

(8)(E) Operation and Maintenance.

(8)(E)1. Plan of operation.

(8)(E)1.A. If required by the department, the recipient of assistance for construction of public water systems must make provision satisfactory to the department for the development of a plan
of operation designed to assure operational efficiency be achieved as quickly as possible. A plan of operation must be submitted by fifty percent (50%) construction completion and approved by ninety percent (90%) construction completion.

(8)(E)1.B. The recipient will ensure that the schedule of tasks as outlined in the approved plan of operation is implemented and completed in accordance with the schedules and prior to final inspection of the project. Plan of operations must be approved by the official project start-up date.

(8)(E)2. Operation and maintenance manual. The recipient must make provision satisfactory to the department for assuring effective operation and maintenance of the constructed project throughout its design life. If required by the department, recipients of assistance for construction of mechanical facilities must make provision satisfactory to the department to develop for approval an operation and maintenance manual in accordance with departmental guidelines. A draft operation and maintenance manual must be submitted by fifty percent (50%) construction completion. At ninety percent (90%) construction, the final operation and maintenance manual must be approved.

(8)(E)3. Start-up training. At fifty percent (50%) construction completion, a start-up training proposal (if required) and proposed follow-up services contract must be submitted. This contract must be approved by ninety percent (90%) construction completion.

(8)(E)4. Personnel. The recipient must make provision satisfactory to the department for assuring that operator(s) and maintenance personnel are hired in accordance with an approved schedule.

(8)(E)5. System certification. One (1) year after initiation of operation of the constructed public water system, the recipient shall certify to the department whether or not the public water system meets the project performance standards. Any statement of noncompliance must be accompanied by a corrective action report containing an analysis of the cause of the project's inability to meet performance standards, actions necessary to bring it into compliance and reasonably scheduled date for positive certification of the project. Timely corrective action shall be executed by the recipient.

(8)(F) Accounting and Audits. Applicants are required to have a dedicated source for repayment of any loans and an adequate financial management system and audit procedure for the project which provides efficient and effective accountability and control of all property, funds and assets related to the project. The applicant's financial system is subject to state or federal audits to assure fiscal integrity of public funds.

(8)(F)1. Each recipient is expected to have an adequate accounting system for the project which provides efficient and effective accountability and control of all property, funds and assets.

(8)(F)1.A. The recipient is responsible for maintaining a financial management system which will adequately provide for an accurate, current and complete disclosure of the financial results of each loan project. Accounting for project funds will be in accordance with generally accepted

government accounting principles and practices, consistently applied, regardless of the source of funds.

(8)(F)1.B. An acceptable accounting system includes books and records showing all financial transactions related to the construction project. The system must document all receipt and disbursement transactions. It also must group them by type of account (for example, asset, revenue, expense, etc.) and by individual expense account (for example, personnel salaries and wages, subcontract costs, etc.). The recipient shall maintain books, records, documents and other evidence and accounting procedures and practices, sufficient to reflect properly the amount, receipt and disposition by the recipient for all assistance received for the project and the total costs of the project of whatever nature incurred for the performance of the project for which the assistance was awarded. Minimum standards for an adequate accounting system include--

(8)(F)1.B.(I) The accounting system should be on a double entry basis with a general ledger in which all transactions are recorded in detail or in summary from subordinate accounts;

(8)(F)1.B.(II) Recording of transactions pertaining to the construction project should be all inclusive, timely, verifiable and supported by documentation;

(8)(F)1.B.(III) The system must disclose the receipt and use of all funds received in support of the project;

(8)(F)1.B.(IV) Responsibility for all project funds must be placed with a project manager;

(8)(F)1.B.(V) Responsibility for accounting and control must be segregated from project operations. The accounting system and related procedures should be documented for consistent application;

(8)(F)1.B.(VI) The accrual basis of accounting is strongly recommended for construction projects as it provides an effective measure of costs and expenditures;

(8)(F)1.B.(VII) Inventories of property and equipment should be maintained in subordinate records controlled by the general ledger and should be verified by physical inventory at least biennially;

(8)(F)1.B.(VIII) The accounting system must identify all project costs and differentiate between eligible and ineligible costs;

(8)(F)1.B.(IX) Accounts should be set up in a way to identify each organizational unit, function or task providing services to the construction project;

(8)(F)1.B.(X) An important project management objective of the system is the derivation of information regarding actual versus budgeted costs by project task and performing organization; and

(8)(F)1.B.(XI) Financial reports should be prepared monthly to provide project managers with a timely, accurate status of the construction project and costs incurred.

(8)(F)2. Audits. The recipient must comply with the provisions of OMB Circular A-128 governing the audit of state and local government.

(8)(G) Record Retention Requirements.

(8)(G)1. Construction-related activities. At a minimum, the recipient must retain all financial, technical and administrative records related to the planning, design and construction of the project for a minimum period of seven (7) years following receipt of the final construction payment or the recipient's acceptance of construction, whichever is later. Records shall be available to state officials for audit purposes during normal business hours during that period.

(8)(G)2. Post-construction financing activities. At a minimum, the recipient must retain all financial and administrative records related to post-construction project financing for a minimum period of seven (7) years following full repayment of assistance.

(8)(H) Minimum Requirements for Architectural or Engineering Contracts.

(8)(H)1. The subagreement must:

(8)(H)1.A. Be necessary for and directly related to the accomplishment of the project;

(8)(H)1.B. Be a lump sum or cost plus fixed fee contract in the form of a bilaterally executed written agreement;

(8)(H)1.C. Be for monetary consideration;

(8)(H)1.D. Not be in the nature of a grant or gift;

(8)(H)1.E. State a time frame for performance;

(8)(H)1.F. State a cost which cannot be exceeded except by amendment; and

(8)(H)1.G. State provisions for payment.

(8)(H)2. The nature, scope and extent of work to be performed during construction should include, but not be limited to, the following:

(8)(H)2.A. Preparing a plan of operation if required by the department that meets the requirements of this rule;

(8)(H)2.B. Preparing an operation and maintenance manual if required by the department that meets the requirements of this rule;

(8)(H)2.C. Assisting the recipient in letting bids;

(8)(H)2.D. Assisting the recipient in reviewing and analyzing construction bids and making recommendations for award;

(8)(H)2.E. Inspecting during construction to ensure conformance with the construction contract documents unless waived by the department; and

(8)(H)2.F. Assisting with facility operation for purposes of certifying that the facility is operating properly one (1) year after start-up.

(8)(H)3. The final approved executed engineering contract must be submitted prior to the first reimbursement request.

(8)(I) Procurement of Engineering Services.

(8)(I)1. Contracts for architectural, engineering and land surveying services shall be negotiated on the basis of demonstrated competence, qualifications for the type of services required and at fair and reasonable prices. The procedures and procurement requirements in sections 8.285-8.291, RSMo apply unless the applicant elects to use the design/build option described in this rule.

(8)(I)2. Use of the same architect or engineer during construction. If the recipient is satisfied with the qualifications and performance of the architect or engineer who provided any or all of the facilities planning or design services for the project and wishes to retain that firm or individual during construction of the project, the recipient may do so without further public notice and evaluation of qualifications, provided the recipient selected the firm using, at a minimum, the procedures in sections 8.285-8.291, RSMo.

(8)(J) Specifications. The construction specifications must contain the following:

(8)(J)1. Recipients must incorporate in their specifications a clear and accurate description of the technical requirements for the material, product or service to be procured. The description, in competitive procurement, shall not contain features which unduly restrict competition unless the features are necessary to test or demonstrate a specific thing or to provide for interchangeability of parts and equipment. The description shall include a statement of the qualitative nature of the material, product or service to be procured and, when necessary, shall set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use;

(8)(J)2. The recipient shall avoid the use of detailed product specifications if at all possible;

(8)(J)3. When in the judgment of the recipient it is impractical or uneconomical to make a clear and accurate description of the technical requirements, recipients may use a brand name or equal description as a means to define the performance or other salient requirements of a procurement. The recipient need not establish the existence of any source other than the named brand.

Recipients must state clearly in the specification the salient requirements of the named brand which must be met by offerers;

(8)(J)4. Sole source restriction. A specification shall not require the use of structures, materials, equipment or processes which are known to be available only from a sole source, unless the department determines that the recipient's engineer has adequately justified in writing to the department that the proposed use meets the particular project's minimum needs;

(8)(J)5. Experience clause restriction. The general use of experience clauses requiring equipment manufacturers to have a record of satisfactory operation for a specified period of time or of bonds or deposits to guarantee replacement in the event of failure is restricted to special cases where the recipient's engineer adequately justifies any such requirement in writing. Where this justification has been made, submission of a bond or deposit shall be permitted instead of a specified experience period. The period of time for which the bond or deposit is required shall not exceed the experience period specified;

(8)(J)6. Domestic products procurement law. In accordance with sections 34.350-34.359, RSMo, the bid documents shall require all manufactured goods or commodities used or supplied in the performance of any contract or subcontract awarded on a loan project to be manufactured, assembled or produced in the United States, unless obtaining American-made products would increase the cost of the contract by more than ten percent (10%) and in accordance with section 71.140, RSMo, preference shall be given to Missouri products;

(8)(J)7. Bonding. On construction contracts exceeding one hundred thousand dollars (\$100,000), the bid documents shall require each bidder to furnish a bid guarantee equivalent to five percent (5%) of the bid price. In addition, the bid documents must require the successful bidder to furnish performance and payment bonds, each of which shall be in an amount not less than one hundred percent (100%) of the contract price;

(8)(J)8. State wage determination. The bid documents shall contain the current prevailing wage determination issued by the Missouri Department of Labor and Industrial Relations, Division of Labor Standards, if otherwise required by law;

(8)(J)9. Right of entry to the project site shall be provided for representatives of the department and the Environmental Improvement and Energy Resources Authority so they may have access to the work wherever it is in preparation or progress; and

(8)(J)10. The specifications must include the following statement: "The owner shall make payment to the contractor in accordance with section 34.057, RSMo."

(8)(K) Construction Equipment and Supplies Procurement. This section describes the minimum procurement requirements which the recipient must use unless the applicant elects to use the design/build option described in subsection (8)(L) of this rule.

(8)(K)1. Small purchases. A small purchase is the procurement of materials, supplies and services when the aggregate amount involved in any one (1) transaction does not exceed twenty-

five thousand dollars (\$25,000). The small purchase limitation of twenty-five thousand dollars (\$25,000) applies to the aggregate total of an order, including all estimated handling and freight charges, overhead and profit to be paid under the order. In arriving at the aggregate amount involved in any one (1) transaction, all items which should properly be grouped together must be included. Department approval and a minimum of three (3) quotes must be obtained prior to purchase.

(8)(K)2. Bidding requirements. This paragraph applies to procurement of construction equipment, supplies and construction services in excess of twenty-five thousand dollars (\$25,000) awarded by the recipient. No contract shall be awarded until the department has approved the formal advertising and bidding.

(8)(K)2.A. Formal advertising.

(8)(K)2.A.(I) Adequate public notice. The recipient will cause adequate notice to be given of the solicitation by publication in newspapers of general circulation beyond the recipient's locality (preferable statewide), construction trade journals or plan rooms, inviting bids on the project work and stating the method by which bidding documents may be obtained or examined.

(8)(K)2.A.(II) Adequate time for preparing bids. A minimum of thirty (30) days shall be allowed between the date when public notice, publication, insertion or document availability in a plan room is first published and the date by which bids must be submitted. Bidding documents shall be available to prospective bidders from the date when the notice is first published or provided.

(8)(K)2.B. Bid document requirements and procedure.

(8)(K)2.B.(I) The recipient shall prepare a reasonable number of bidding documents (Invitations for Bids) and shall furnish them upon request on a first-come, first-served basis. The recipient shall maintain a complete set of bidding documents and shall make them available for inspection and copying by any party. The bidding documents shall include, at a minimum:

(8)(K)2.B.(I)(a) A completed statement of the work to be performed or equipment to be supplied and the required completion schedule;

(8)(K)2.B.(I)(b) The terms and conditions of the contract to be awarded;

(8)(K)2.B.(I)(c) A clear explanation of the method of bidding and the method of evaluation of bid prices and the basis and method for award of the contract or rejection of all bids;

(8)(K)2.B.(I)(d) Responsibility requirements and criteria which will be employed in evaluating bidders;

(8)(K)2.B.(I)(e) The recipient shall provide for bidding by sealed bid and for the safeguarding of bids received until public opening;

(8)(K)2.B.(I)(f) If a recipient desires to amend any part of the bidding documents during the period when bids are being prepared, addenda shall be communicated in writing to all firms which have obtained bidding documents in time to be considered before the bid opening time. All addenda must be approved by the department prior to award of the contract;

(8)(K)2.B.(I)(g) A firm which has submitted a bid shall be allowed to modify or withdraw its bid before the time of bid opening;

(8)(K)2.B.(I)(h) The recipient shall provide for a public opening of bids at the place, date and time announced in the bidding documents. Bids received after the announced opening time shall be returned unopened;

(8)(K)2.B.(I)(i) Award shall be to the lowest, responsive, responsible bidder. After bids are opened, the recipient shall evaluate them in accordance with the methods and criteria set forth in the bidding documents. The recipient shall award contracts only to responsible contractors that possess the potential ability to perform successfully under the terms and conditions of a proposed contract. A responsible contractor is one that has financial resources, technical qualifications, experience, organization and facilities adequate to carry out the contract or a demonstrated ability to obtain these. The recipient may reserve the right to reject all bids. Unless all bids are rejected for good cause, award shall be made to the lowest, responsive, responsible bidder. The recipient shall have established protest provisions in the specifications. These provisions shall not include the department as a participant in the protest procedures. If the recipient intends to make the award to a firm which did not submit the lowest bid, the recipient shall prepare a written statement before any award, explaining why each lower bidder was deemed nonresponsible or nonresponsive and shall retain the statements in its files. The recipient shall not reject a bid as nonresponsive for failure to list or otherwise indicate the selection of subcontractor(s) or equipment unless the recipient has clearly stated in the solicitation documents that the failure to list shall render a bid nonresponsive and shall cause rejection of a bid; and

(8)(K)2.B.(I)(j) Departmental concurrence with contract award must be obtained prior to actual contract award. Recipients shall notify the department in writing of each proposed construction contract which has an aggregate value over twenty-five thousand dollars (\$25,000). The recipient shall notify the department within ten (10) calendar days after the bid opening for each construction subagreement. The notice shall include:

(8)(K)2.B.(I)(j)I. Proof of advertising;

(8)(K)2.B.(I)(j)II. Tabulation of bids;

(8)(K)2.B.(I)(j)III. The bid proposal from the bidder that the recipient wishes to accept, including justification if the recommended successful bidder is not also the lowest bidder;

(8)(K)2.B.(I)(j)IV. Recommendation of award;

(8)(K)2.B.(I)(j)V. Any addenda not submitted previously and bidder acknowledgment of all addenda;

(8)(K)2.B.(I)(j)VI. Copy of the bid bond;

(8)(K)2.B.(I)(j)VII. One (1) set of as-bid specifications;

(8)(K)2.B.(I)(j)VIII. Revised financial capability worksheet and certification if bids exceed prebid estimates by more than fifteen percent (15%); and

(8)(K)2.B.(I)(j)IX. Site certification, if not previously submitted.

(8)(L) Design/Build Projects. Applicants may elect to use the design/build method of procuring design and construction services in lieu of the procurement methods described in subsection (8)(K) of this rule.

(8)(L)1. Additional application requirements. The applicant must provide the department with:

(8)(L)1.A. A legal opinion of the applicant's counsel stating that the design/build procurement method is not in violation of any state or local statutes, charters, ordinances or rules pertaining to the applicant; and

(8)(L)1.B. A bid package that is sufficiently detailed to ensure that the bids received for the design/build work are complete, accurate, comparable and will result in the most cost-effective operable facility which meets the design requirements of the department. The "Design Guide for Community Water Systems" or the "Ten State Standards" shall be considered for design standards. The prebid package shall contain, at a minimum, the clauses in paragraphs (8)(J)6.-8. of this rule, if applicable.

(8)(L)2. Bidding procedures. Bidding shall be conducted in accordance with the procedures described in paragraph (8)(K)2. of this rule.

(8)(L)3. Contract type. Design/build contracts shall be lump sum contracts for the cost associated with design and construction. No increases to contract price for design and construction services shall be permitted. Recipients are encouraged to incorporate facility operations into the contract. When included in the contract, the cost of operations for an established time period may be included in the criteria for evaluating bids and selecting the lowest, responsible, responsive bidder.

(8)(L)4. Review and oversight. The recipient shall procure engineering services to oversee the design work performed by the design/build contractor and to provide resident inspection of construction. The department may require the recipient to submit plans, specifications and documentation during design and construction as necessary to ensure that the facility meets state standards for design and construction.

(8)(L)5. Department approvals and permits. Prior to construction start, the recipient must obtain approval of the construction plans and specifications and obtain a construction permit from the department.

(8)(M) Conflict of Interest.

(8)(M)1. No employee, officer or agent of the recipient shall participate in the selection, award or administration of a subagreement supported by state or federal funds if a conflict of interest, real or apparent, would be involved. This conflict would arise when--

(8)(M)1.A. Any employee, officer or agent of the recipient, any member of their immediate families or their partners have a financial or other interest in the firm selected for a contract; or

(8)(M)1.B. An organization which may receive or has been awarded a subagreement employs, or is about to employ, any employee, officer or agent of the recipient, any member of their immediate families or their partners.

(8)(M)2. The recipient's officers, employees or agents shall neither solicit nor accept gratuities, favors or anything of substantial monetary value from contractors, potential contractors or other parties to subagreements.

(8)(N) Changes in Contract Price or Time. The contract price or time may be changed only by a change order. The value of any work covered by a change order or of any claim for increase or decrease in the contract price shall be determined by the methods set forth in the following:

(8)(N)1. Unit prices.

(8)(N)1.A. Unit prices previously approved are acceptable for pricing changes of original bid items. However, when changes in quantities exceed fifteen percent (15%) of the original bid quantity and the total dollar change of that bid item is greater than twenty-five thousand dollars (\$25,000), the recipient shall review the unit price to determine if a new unit price should be negotiated.

(8)(N)1.B. Unit prices of new items shall be negotiated;

(8)(N)2. A lump sum to be negotiated; and

(8)(N)3. Cost reimbursement. The actual cost for labor, direct overhead, materials, supplies, equipment and other services necessary to complete the work plus an amount to cover the cost of general overhead and profit.

(8)(O) Progress Payments to Contractors.

(8)(O)1. Recipients should make prompt progress payments to prime contractors and prime contractors should make prompt progress payments to subcontractors and suppliers for eligible construction, supplies and equipment costs.

(8)(O)1.A. For purposes of this section, progress payments are defined as follows:

(8)(O)1.A.(I) Payments for work in place; and

(8)(O)1.A.(II) Payments for materials or equipment which have been delivered to the construction site or which are stockpiled in the vicinity of the construction site in accordance with the terms of the contract, when conditional or final acceptance is made by or for the recipient. The recipient shall assure that items for which progress payments have been made are adequately insured and are protected through appropriate security measures.

(8)(O)2. Appropriate provisions regarding progress payments must be included in each contract and subcontract.

(8)(O)3. Retention from progress payments. The recipient may retain a portion of the amount otherwise due the contractor. The amount the recipient retains shall be in accordance with section 34.057, RSMo.

(8)(P) Classification of Costs.

(8)(P)1. Eligible project costs. Loans shall not exceed the total eligible project costs described in this subsection (8)(P) less any amounts financed by any means other than through the direct loan program. All project costs will be eligible if they are reasonable and cost effective and are necessary for the approved project, including required mitigation. Eligible costs include, at a minimum:

(8)(P)1.A. Engineering services and other services incurred in planning and in preparing the design drawings and specifications for the project. These services and their related expenses can be reimbursed based on actual invoices to be submitted after loan closing or by means of an allowance. For invoice reimbursement, the department must have a copy of the executed engineering contract for planning and design of the project. Allowance reimbursement for these services will be based on a percentage of the total eligible construction contract amounts at bid opening as determined from Table 1 or 2 (as applicable) plus land, equipment, materials and supplies identified or referenced in the approved engineering report. For phased or segmented projects, incremental allowance calculations and corresponding reimbursements may be made;

(8)(P)1.B. The reasonable cost of engineering services incurred during the building and initial operation phase of the project to ensure that it is built in conformance with the design drawings and specifications. A registered professional engineer licensed in Missouri or a person under the direction and continuing supervision of a registered professional engineer licensed in Missouri must provide inspection of construction for the purpose of assuring and certifying compliance with the approved plans and specifications. Eligible construction phase and initial operation phase service are limited to--

(8)(P)1.B.(I) Office engineering;

(8)(P)1.B.(II) Construction surveillance;

(8)(P)1.B.(III) Stakeout surveying;

(8)(P)1.B.(IV) As-built drawings;

(8)(P)1.B.(V) Special soils/materials testing;

(8)(P)1.B.(VI) Operation and maintenance manual;

(8)(P)1.B.(VII) Follow-up services and the cost of start-up training for operators of mechanical facilities constructed by the project to the extent that these costs are incurred prior to this department's final inspection. Costs shall be limited to on-site operator training tailored to the facilities constructed or on- or off-site training may be provided by the equipment manufacturer if this training is properly procured;

(8)(P)1.B.(VIII) User charge ordinance; and

(8)(P)1.B.(IX) Plan of operation;

(8)(P)1.C. Abandoning costs. The reasonable and necessary cost of abandoning drinking water facilities no longer in use. Generally, these costs will be limited to the demolition and disposal of the structures, and abandoning unused wells owned by the recipient in accordance with 10 CSR 23-3.110, and final grading and seeding of the site;

(8)(P)1.D. Change orders and the costs of meritorious contractor claims for increased costs under subagreements as follows:

(8)(P)1.D.(I) Within the allowable scope of the project;

(8)(P)1.D.(II) Costs of equitable adjustments due to differing site conditions;

(8)(P)1.D.(III) Settlements, arbitration awards and court judgments which resolve contractor claims shall be allowable only to the extent that they are not due to the mismanagement of the recipient;

(8)(P)1.E. Costs necessary to mitigate only direct, adverse, physical impacts resulting from building of the water works;

(8)(P)1.F. The costs of site screening necessary to comply with environmental studies and facilities plans or necessary to screen adjacent properties;

(8)(P)1.G. Equipment, materials and supplies.

(8)(P)1.G.(I) The cost of a reasonable inventory of laboratory chemicals and supplies necessary to initiate plant operations and laboratory items necessary to conduct tests required for plant operation.

(8)(P)1.G.(II) Cost of shop equipment installed at the public water system necessary to the operation of the works.

(8)(P)1.G.(III) The costs of necessary safety equipment, provided the equipment meets applicable federal, state, local or industry safety requirements.

(8)(P)1.G.(IV) The costs of mobile equipment necessary for the operation of the overall public water system, or for the maintenance of equipment. These items include: portable standby generators; large portable emergency pumps; trailers and other vehicles having as their purpose the transportation or application, or both, of liquid or dewatered water treatment plant residuals; and replacement parts identified and approved in advance;

(8)(P)1.H. Costs of royalties for the use of or rights in a patented process or product with the prior approval of the department;

(8)(P)1.I. Land, easements or rights of way when the acquisition of real property or interests therein is integral to the project and the purchase is from a willing seller. Eligibility shall be limited to fair market value;

(8)(P)1.J. Force account work for construction oversight and engineering planning and design. If force account is used for planning and design, all engineering services during construction must be provided through force account;

(8)(P)1.K. The cost of preparing an environmental impact statement if required under <u>10 CSR</u> <u>60-13.030</u>;

(8)(P)1.L. Costs of issuance, capitalized interest, EIERA application fees, and contracted project administration costs; and

(8)(P)1.M. Debt service reserve deposits.

(8)(P)3. Noneligible costs include, but are not limited to:

(8)(P)3.A. The cost of ordinary site and building maintenance equipment such as lawnmowers and snowblowers;

(8)(P)3.B. The cost of general purpose vehicles for the transportation of the recipient's employees;

(8)(P)3.C. Costs allowable in subparagraph (8)(P)2.I. of this rule that are in excess of just compensation based on the appraised value;

(8)(P)3.D. Ordinary operating expenses of the recipient including salaries and expenses of elected and appointed officials and preparation of routine financial reports and studies, and any permit fees necessary for the normal operation of the constructed facility;

(8)(P)3.E. Preparation of applications and permits required by federal, state or local regulations or procedures;

(8)(P)3.F. Administrative, engineering and legal activities associated with the establishment of special departments, agencies, commissions, regions, districts or other units of government;

(8)(P)3.G. Personal injury compensation or damages arising out of the project;

(8)(P)3.H. Fines and penalties due to violations of, or failure to comply with, federal, state or local laws, regulations or procedures;

(8)(P)3.I. Costs outside the scope of the approved project;

(8)(P)3.J. Costs for which grant or loan payment have been or will be received from another state or federal agency;

(8)(P)3.K. Force account work except that listed in subparagraph (8)(P)2.J. of this rule; and

(8)(P)3.L. Costs associated with acquisition of easements and land except that listed in subparagraph (8)(P)2.I.

Construction Cost	Allowance as a Percentage of Construction Cost*
\$ 100,000 or less	14.49
120,000	14.11
150,000	13.66
175,000	13.36
200,000	13.10
250,000	12.68
300,000	12.35
350,000	12.08
400,000	11.84
500,000	11.46
600,000	11.16
700,000	10.92
800,000	10.71
900,000	10.52
1,000,000	10.36
1,200,000	10.09
1,500,000	9.77
1,750,000	9.55
2,000,000	9.37
2,500,000	9.07
3,000,000	8.83
3,500,000	8.63
4,000,000	8.47
5,000,000	8.20
6,000,000	7.98
7,000,000	7.81
8,000,000	7.66

Table I--Maximum Eligible Amount for FacilitiesPlanning and Design

9,000,000	7.52
10,000,000	7.41
12,000,000	7.22
15,000,000	6.99
17,500,000	6.83
20,000,000	6.70
25,000,000	6.48
30,000,000	6.31
35,000,000	6.17
40,000,000	6.06
50,000,000	5.86
60,000,000	5.71
70,000,000	5.58
80,000,000	5.47
90,000,000	5.38
100,000,000	5.30
120,000,000	5.16
150,000,000	4.99
175,000,000	4.88
200,000,000	4.79
+	++

Table 2--Maximum Eligibile Amount--Design Only

Construction Cost	Allowance as a Percentage of Construction Cost*
\$ 100,000 or less	8.57
120,000	8.38
150,000	8.16
175,000	8.01
200,000	7.88
250,000	7.67
300,000	7.50
350,000	7.36
400,000	7.24
500,000	7.05
600,000	6.89
700,000	6.77
800,000	6.66
900,000	6.56
1,000,000	6.43
1,200,000	6.34
1,500,000	6.17
1,750,000	6.05
2,000,000	5.96
2,500,000	5.80
3,000,000	5.67
3,500,000	5.57
4,000,000	5.48
5,000,000	5.33
6,000,000	5.21
7,000,000	5.12
8,000,000	5.04
9,000,000	4.96

10,000,000	4.90
12,000,000	4.79
15,000,000	4.67
17,500,000	4.58
20,000,000	4.51
25,000,000	4.39
30,000,000	4.29
35,000,000	4.21
40,000,000	4.14
50,000,000	4.03
60,000,000	3.94
70,000,000	3.87
80,000,000	3.81
90,000,000	3.75
100,000,000	3.71
120,000,000	3.63
150,000,000	3.53
175,000,000	3.46
200,000,000	3.41
+	++

* Interpolate between values.

Note: These tables shall not be used to determine the compensation for facilities planning or design services. The compensation for facilities planning for design services should be based upon the nature, scope and complexity of the services required by the community.

(8)(Q) Trustee or Paying Agent. The department may require the recipient to contract with a trustee or paying agent to provide all or part of the following services:

(8)(Q)1. Make joint assistance payments to the recipient and their contractors;

(8)(Q)2. Ensure that payments are only released to those recipients whose contractors have a project contract approved by the department;

(8)(Q)3. Ensure that none of the recipient's contractors receive more in assistance payments than approved by the department; and

(8)(Q)4. Maintain financial records of credits and debits for the construction project.

(9) Construction Loans.

(9)(A) The department may award construction loans to qualified applicants in order to provide interim financing during construction of their project. Construction loans will contain clauses and provisions determined by the department to be necessary to protect the interests of the state.

(9)(B) With exception of substate revolving funds and projects receiving financing through the leveraged loan program, the construction loan will remain in force throughout the construction period. However, it must be paid in full in accordance with the closing deadline provided in the construction loan agreement.

(9)(C) If the department is to provide long-term financing under this rule, then the construction loan must contain an agreement by the department and the recipient that the department will purchase the recipient's general obligation, revenue bonds or other acceptable debt obligation after construction is completed. If a construction loan is awarded, the permanent financing amount will be limited in amount to the sum of the payments drawn from the construction loan for eligible project costs plus interest accrued on the construction loan plus the reasonable costs of issuance which can be financed under Missouri statutes.

(9)(D) Unless specifically addressed in the loan documents, the recipient may request construction loan payments no more often than monthly. The maximum construction advance shall be the sum of all eligible costs incurred to date. Each payment shall include the information listed here and any other information deemed necessary by the department to ensure proper project management and expenditure of public funds:

(9)(D)1. Completed reimbursement request form;

(9)(D)2. Construction pay estimates signed by the construction contractor, the recipient and the resident inspector, if applicable; and

(9)(D)3. Invoices for other eligible services, equipment and supplies for the project.

(9)(E) If the department is satisfied that the payment request accurately reflects the eligible cost incurred to date on the project, the department will request that a state payment check be issued to the recipient.

(9)(F) The department shall purchase revenue bonds, general obligation bonds or other acceptable debt obligations from the loan recipient by the closing deadline contained in the construction loan agreement.

(10) Project Bypass, Project Removal and Modification of Funding. This section applies to loan applicants on a fundable priority list. In order to assure best use of the loan funds in a reasonably expeditious manner, projects may be bypassed or removed from a fundable priority list or loan amounts may be modified. The department will confer and negotiate with affected applicants prior to making or recommending decisions on project bypass, project removal or modification of loan amounts.

(10)(A) Project Bypass.

(10)(A)1. Eligibility for bypass. A project may be bypassed if the project is not, in the opinion of the department, making satisfactory progress toward satisfying requirements for assistance.

(10)(A)2. Bypass criteria.

(10)(A)2.A. Any project on the fundable priority list may be by-passed if the applicant fails to submit the documents required for assistance at least sixty (60) days prior to the beginning of the quarter for which the assistance is anticipated.

(10)(A)2.B. Individual schedules developed by the department may be used to determine whether a project is making satisfactory progress during the fiscal year. A project may be bypassed for failure to meet the schedule.

(10)(A)3. Bypass procedures.

(10)(A)3.A. Bypassed projects will be removed from the fundable priority list and, if the application is still valid, will be placed on a project list, in priority order, for funding consideration in the next fiscal year.

(10)(A)3.B. Funds recovered through project bypass will be considered uncommitted and available for distribution to the next priority project.

(10)(B) Project Removal. Projects may be removed from the fundable priority list at the request of the applicant, upon a finding by the department that the project is ineligible for direct loan assistance, upon a finding that the applicant's credit is not adequate for participation in the direct loan program, or if, after the second intended use plan cycle, the applicant has not closed on the loan. If an applicant is removed, it may reapply only after it has secured its debt issuance authorization.

(10)(C) Modification of Funding. In order to maximize use of the aggregate funds available to the state for drinking water infrastructure improvements, the commission may remove projects or modify funding amounts upon a finding by the department that the applicant is eligible for funding from other government programs (such as USDA Rural Development, the Department of Economic Development's Community Development Block Grant Program, or the Environmental Improvement and Energy Resources Authority) or when deemed necessary by the department based on bids received. The department will coordinate with the other funding agencies to arrive at equitable and workable funding options for the applicant. The department reserves the right to limit the maximum loan amount awarded.

10 CSR 60-13.030 Environmental Review

Purpose: This rule establishes procedures and requirements for environmental reviews required for assistance from the Drinking Water State Revolving Fund loan program.

(1) General. The purpose of the environmental review is to ensure that the project will comply with applicable local, state and federal laws and rules relating to the protection and enhancement of the environment. Based upon the staff's review, the director will make formal determinations regarding the potential social and environmental impacts of the proposed project. As necessary, the determination will include mitigative provisions as a condition of the provision of financial assistance for building. No financial assistance will be provided until a final environmental determination has been made. Nothing in this rule shall prohibit any public, private or governmental party from seeking administrative or legal relief from the determinations of the director.

(2) Basic Environmental Determinations. Three (3) basic environmental determinations apply to projects proposed to be implemented with assistance from the fund.

(2)(A) Categorical exclusion (CE). The categorical exclusion (CE) determination applies to categories of projects that have been shown over time not to entail significant impacts on the quality of the human environment.

(2)(A)1. Projects which meet either of the following criteria may be categorically excluded from formal environmental review requirements:

(2)(A)1.A. The project is directed solely toward minor rehabilitation of existing facilities, functional replacement of equipment or toward the construction of related facilities adjoining the existing facilities that do not affect the degree of water treatment or the capacity of the public water system. Examples include rehabilitation of existing equipment and structures, and the construction of small structures on existing sites; and

(2)(A)2. CEs will not be granted for projects that entail--

(2)(A)2.A. The construction of new water mains;

(2)(A)2.B. A new water supply source or relocation of an existing water supply source;

(2)(A)2.C. An increase of more than thirty percent (30%) in the required capacity of the water system;

(2)(A)2.D. Provision of a capacity for a population thirty percent (30%) or greater than the existing population;

(2)(A)2.E. Known or expected impacts to cultural resources, threatened or endangered species, or other environmentally sensitive areas; and

(2)(A)2.F. The construction of facilities that are known or expected to be not cost-effective or are likely to cause significant public controversy.

(2)(B) Finding of no significant impact/environmental assessment (FNSI/EA). The FNSI/EA will be based upon an environmental review by the staff supported by an environmental information document (EID) prepared by the applicant in conformance with guidance developed by the department. If a FNSI/EA is not appropriate, a public notice noting the preparation of an EIS will be required. The director's issuance of a FNSI/EA will be based upon documentation that the potential environmental impacts will not be significant or that they may be mitigated without extraordinary measures.

(2)(C) Record of Decision (ROD). The ROD may only be based upon an EIS in conformance with the format and guidelines described in this subsection. An EIS will be required when the director determines any of the following:

(2)(C)1. The project significantly will affect the pattern and type of land use or growth and distribution of the population;

(2)(C)2. The effects resulting from any structure or facility constructed or operated under the proposed action may conflict with local or state land use plans or policies;

(2)(C)3. The project may have significant adverse impacts upon--

(2)(C)3.A. Wetlands;

(2)(C)3.B. Floodplains;

(2)(C)3.C. Threatened and endangered species or their habitats;

(2)(C)3.D. Cultural resources including parklands, preserves, other public lands or recognized scenic, recreational, prime farmlands, archeological or historic value; and

(2)(C)3.E. Prime farmland;

(2)(C)4. The project will displace populations or significantly alter the characteristics of existing residential areas; and

(2)(C)5. The project directly or indirectly (for example, through induced development) may have significant adverse effect upon local ambient air quality, local noise levels, surface and groundwater quantity or quality, fish, shellfish, wildlife or their natural habitats.

(3) When five (5) or more years have elapsed between the last environmental determination and the submittal of an application to the fund, the director will reevaluate the project, environmental conditions and public views and, prior to approval of the application, proceed in accordance with subsection (6)(A) of this rule.

(4) Pre-environmental review construction.

(4)(A) An applicant may request advance authority to construct part of the proposed drinking water project prior to completion of the necessary environmental review when that part of the project will--

(4)(A)1. Remedy a severe public health problem immediately;

(4)(A)2. Not preclude any reasonable alternatives identified for the complete system;

(4)(A)3. Not cause significant direct or indirect environmental impacts including those which cannot be acceptably mitigated without completing the entire project; and

(4)(A)4. Not be highly controversial.

(4)(B) Based upon the review of the information required by section (2) of this rule, the director will issue a FNSI/EA so conditioned as to prohibit construction of the remainder of the project until a complete environmental review has been performed and a subsequent environmental determination has been issued.

(5) Information Required for Environmental Review. A minimum of three (3) copies of all information required in this section shall be submitted to the department.

(5)(A) Applicants seeking a CE shall provide the director with sufficient documentation to demonstrate compliance with the criteria of subsection (2)(A). At a minimum, this shall consist of a--

(5)(A)1. Brief, complete description of the proposed project and its costs;

(5)(A)2. Statement indicating that the project is cost-effective and that the applicant is financially capable of constructing, operating and maintaining the facilities; and

(5)(A)3. Plan map(s) of the proposed project showing--

(5)(A)3.A. The location of all construction areas;

(5)(A)3.B. The planning area boundaries; and

(5)(A)3.C. Any known environmentally sensitive areas.

(5)(B) An EID shall be submitted by those applicants whose proposed projects do not meet the criteria for a CE and for which the director has made a preliminary determination that an EIS will not be required. The director will provide guidance on both the format and contents of the EID to potential applicants prior to initiation of facilities planning.

(5)(B)1. At a minimum, the contents of an EID shall include:

(5)(B)1.A. The purpose and need for the project;

(5)(B)1.B. The environmental setting of the project and the future of the environment without the project;

(5)(B)1.C. The alternatives to the project as proposed;

(5)(B)1.D. A description of the proposed project;

(5)(B)1.E. The potential environmental impacts of the project as proposed including those which cannot be avoided;

(5)(B)1.F. The relationship between the short-term uses of the environment and the maintenance and enhancement of long-term productivity;

(5)(B)1.G. Any irreversible and irretrievable commitments of resources to the proposed project;

(5)(B)1.H. A description of public participation activities conducted, issues raised and changes to the project which may be made as a result of the public participation process; and

(5)(B)1.I. Documentation of coordination with appropriate governmental agencies.

(5)(B)2. The applicant shall hold a public hearing on the proposed project and the EID, and provide the director with a verbatim transcript of the hearing. The director will provide guidance to the applicant regarding the contents of the hearing notice and of the hearing. The hearing will be advertised at least thirty (30) days in advance in a local newspaper of general circulation. Concurrent with the advertisement, a notice of the public hearing and availability of the documents will be sent to all local, state and federal agencies and public and private parties that may have an interest in the proposed project. Included with the transcript will be a list of all attendees with addresses, any written testimony and the applicant's responses to the issues raised.

(5)(B)3. The department will provide copies of the FNSI/EA to all federal, state and local agencies and others with an interest in the project.

(5)(C) The format of an EIS shall encourage sound analyses and clear presentation of alternatives, including the no-action alternative and the selected alternative and their environmental, economic and social impacts. The following format shall be followed by the applicant unless the director determines there are compelling reasons to do otherwise:

(5)(C)1. A cover sheet identifying the applicant, the project(s), the program through which financial assistance is requested and the date of publication;

(5)(C)2. An executive summary consisting of a five to fifteen (5-15) page summary of the critical issues of the EIS in sufficient detail that the reader may become familiar with the proposed project and its cumulative effects. The summary will include:

(5)(C)2.A. A description of the existing problem;

(5)(C)2.B. A description of each alternative;

(5)(C)2.C. A listing of each alternative's potential environmental impacts, mitigative measures and any areas of controversy; and

(5)(C)2.D. Any major conclusions;

(5)(C)3. The body of the EIS which shall contain the following information:

(5)(C)3.A. A complete and clear description of the purpose and need for the proposed project that clearly identifies its goals and objectives;

(5)(C)3.B. A balanced description of each alternative considered by the applicant. The descriptions will include the size and location of the facilities and pipelines, land requirements, operation and maintenance requirements and construction schedules. The alternative of no action will be discussed and the applicant's preferred alternative(s) will be identified. Alternatives that were eliminated from detailed examination will be presented with the reasons for their elimination;

(5)(C)3.C. A description of the alternatives available to the department including:

(5)(C)3.C.(I) Providing financial assistance to the proposed project;

(5)(C)3.C.(II) Requiring that the proposed project be modified prior to providing financial assistance to reduce adverse environmental impacts or providing assistance with conditions requiring the implementation of mitigative measures; and

(5)(C)3.C.(III) Not providing financial assistance;

(5)(C)3.D. A description of the alternatives available to other local, state and federal agencies which may have the ability to issue or deny a permit, provide financial assistance or otherwise affect or have an interest in any of the alternatives;

(5)(C)3.E. A description of the affected environment and environmental consequences of each alternative including secondary and cumulative impacts. The affected environment on which the evaluation of each alternative will be based includes, as a partial listing, hydrology, geology, air quality, noise, biology, socioeconomics, land use and cultural resources of the facilities planning area. The department will provide guidance, as necessary, to the applicant regarding the evaluation of the affected environment. The discussion will present the total impacts of each alternative in a manner that will facilitate comparison. The effects of the no-action alternative must be included to serve as a baseline for comparison of the adverse and beneficial impacts of the other alternatives. A description of the existing environment will be included in the no-action section to provide background information. The detail in which the affected environment is described will be commensurate with the complexity of the situation and the significance of the anticipated impacts;

(5)(C)4. The draft EIS will be provided to all local, state and federal agencies and public groups with an interest in the proposed project and be made available to the public for review. The final EIS will include all objections and suggestions made before and during the draft EIS review process along with the issues of public concern expressed by individuals or interested groups. The final EIS must include discussions of any such comments pertinent to the project or the EIS. All commenters will be identified. If a comment has led to a change in either the project or the EIS, the reason should be given. The department will always endeavor to resolve any conflicts that may have arisen, particularly among permitting agencies, prior to the issuance of the final EIS. In all cases, the comment period will be no less than forty-five (45) days;

(5)(C)5. Material incorporated into an EIS by reference will be organized into a supplemental information document and be made available for public review upon request. No material may

be incorporated by reference unless it is reasonably available for inspection by interested persons within the comment periods specified in paragraph (5)(C)4. and subparagraph (5)(C)7.C.;

(5)(C)6. When an EIS is prepared by contractors, either in the service of the applicant or the department, the department will independently evaluate the EIS prior to issuance of the ROD and take responsibility for its scope and contents. The staff who undertake this evaluation will be identified under the list of preparers along with those of the contractor and any other parties responsible for the content of the EIS; and

(5)(C)7. The public participation required for an EIS is extensive but, depending upon the nature and scope of the proposed project, should be supplemented by the applicant. The following requirements represent the minimum allowable:

(5)(C)7.A. Upon making the determination that an EIS is required of a proposed project, the department will distribute a notice of intent to prepare an EIS;

(5)(C)7.B. As soon as possible after the notice of intent has been issued, the director will convene a meeting of the affected federal, state and local agencies, the applicant and other interested parties to determine the scope of the EIS. A notice of this scoping meeting may be incorporated into the notice of intent or prepared as in paragraph (5)(B)2. of this rule except that in no case will the notification period be less than forty-five (45) days. As part of the scoping meeting the director will, at a minimum-

(5)(C)7.B.(I) Determine the significance of issues and analyze in depth the scope of those significant issues in the EIS;

(5)(C)7.B.(II) Identify the preliminary range of alternatives to be considered;

(5)(C)7.B.(III) Identify potential cooperating agencies and determine the information or analyses that may be needed from cooperating agencies or other parties;

(5)(C)7.B.(IV) Discuss the method for EIS preparation and the public participation strategy;

(5)(C)7.B.(V) Identify consultation requirement of other laws and regulations; and

(5)(C)7.B.(VI) Determine the relationship between the preparation of the EIS and the completion of the engineering report and any necessary arrangements for coordination of the preparation of both documents; and

(5)(C)7.C. Following the scoping process, the director will begin the identification and evaluation of all potentially viable alternatives to adequately address the range of issues developed in the scoping. A summary of this, including a list of the significant issues identified, will be provided to the applicant and other interested parties. Preparation of the EIS will be done at the discretion of the department: directly, by the staff; by consultants to the department; or by a consultant contracted by the applicant subject to approval by the department. In the latter two (2) cases, the consultant will be required to execute a disclosure statement prepared by the

department signifying they have no financial or other conflicting interest in the outcome of the project. Both the draft EIS and final EIS will be distributed and made available for public review in a fashion consistent with the requirements of paragraph (5)(B)2. of this rule except that the advertisement and comment period for the public participation will be no less than forty-five (45) days. The department will publish in a newspaper of general circulation in the project area, a notice of availability of the EIS giving locations at which it will be available for public review at least forty-five (45) days prior to making any environmental determination.

(6) Environmental Review.

(6)(A) When the director has determined that an applicant's proposed project may be excluded from a formal environmental review, the director will prepare a public notice of the determination to categorically exclude the project and the availability of supporting documentation for public inspection. The notice will be published in a local newspaper of community-wide circulation by the applicant. The director, concurrent with the publication, will distribute the notice to all interested parties.

(6)(B) An environmental review of the proposed project, supported by the applicant's EID, will be conducted by the director to determine whether any significant impacts are anticipated and whether any changes may be made in the proposed project to eliminate significant adverse impacts. As part of this review, the director may require the applicant to submit additional information or undertake additional public participation and coordination to support its environmental determination. Based on the environmental review, the director will prepare a FNSI/EA describing--

(6)(B)1. The purpose and need for the proposed project;

(6)(B)2. The proposed project including its costs;

(6)(B)3. The alternatives considered and the reasons for their rejection or acceptance;

(6)(B)4. The existing environment;

(6)(B)5. Any potential adverse impacts and mitigative measures; and

(6)(B)6. Any proposed conditions to the provision of financial assistance and any means provided for the monitoring of compliance with the conditions.

(6)(C) The FNSI/EA will be distributed to all parties, governmental entities and agencies that may have an interest in the proposed project. No action regarding approval of the engineering report or the provision of financial assistance will be taken by the director for at least thirty (30) days after the issuance of the FNSI/EA.

(6)(D) Public participation requirements for an EIS are detailed in paragraph (5)(B)2. except the ROD and final EIS shall have a forty-five (45)-day period of notice.

(6)(E) In accordance with section (7) of this rule, the director will conduct environmental reviews and issue public notices or amended determinations as appropriate.

(7) Project Modification. Recognizing that a project may be altered at some time after an environmental determination on the project has been issued, the director will provide that, prior to approval, the plans and specifications, loan application and related documents will be examined for consistency with the environmental determination. If inconsistencies are found, the director may revoke a CE and require the preparation of an FNSI/EA or an EIS, or require the preparation of amendments to a FNSI/EA or supplements to an EIS, as appropriate. Based upon the staff's review of the amended project, the director will--

(7)(A) Reaffirm the original environmental determination through the issuance of a public notice or statement of finding;

(7)(B) Issue a FNSI for a project for which a CE has been revoked or issue a public notice that the preparation of an EIS will be required;

(7)(C) Issue an amendment to a FNSI/EA or revoke a FNSI and issue a public notice that the preparation of an EIS will be required; or

(7)(D) Issue a supplement to a ROD or revoke a ROD and issue a public notice that financial assistance will not be provided.

10 CSR 60-14 Chapter 14--Operator Certification

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10 CSR 60-14.010 Classification Of Public Water Systems And System Requirements

PURPOSE: This rule determines the classification level of public water system treatment and distribution systems for the purpose of determining the certification level required for the chief operator. It also establishes system requirements for certified operating personnel.

(1) Applicability. This rule applies to all community and nontransient noncommunity public water systems and those transient noncommunity public water systems that use surface water or groundwater under the direct influence of surface water. Therefore, where the term "public water system" is used in this rule, it is understood to refer only to these types of systems.

(2) Definitions.

(2)(A) Available. Based on system size, complexity, and source water quality, a certified operator must be on-site or able to be contacted promptly (i.e., reasonably accessible) as needed to initiate appropriate action in a timely manner.

(2)(B) Certified operator. Any individual holding a valid water treatment or water distribution certificate of any level issued by the department.

(2)(C) Chief operator. A certified operator designated by the owner of the public water system to have overall responsibility for the day-to-day process control/system integrity decisions regarding supervisory and operational activities that will directly impact the quality and quantity of drinking water. This individual must possess a certificate at the level of or higher than the classification of the treatment facility or distribution system for which he or she is responsible.

(2)(D) Operator in responsible charge. An individual who performs the duties of a chief operator.

(2)(E) Operate. To make or act upon process control/system integrity decisions regarding a water treatment facility or distribution system.

(2)(F) Process control/system integrity decisions. Day-to-day decisions that maintain or cause changes in the chemical, biological, physical or radiological quality of the drinking water. These decisions primarily reflect independent, individual judgement which when made incorrectly have the potential to place the public health at risk or place the soundness of the water system or its ability to provide a safe, adequate and continuous supply of water at risk. These decisions are not referring to system design or modifications for which the department requires design or approval by a professional engineer.

(2)(G) Treatment facility. Any place(s) where a community water system or nontransient noncommunity water system alters the physical or chemical characteristics of the drinking water. Chlorination may be considered a function of a distribution system.

(2)(H) Distribution system. Any combination of pipes, tanks, pumps, etc. which delivers water from the source(s) and/or treatment facility(ies) to the consumer.

(3) Classification of Public Water Systems.

(3)(A) The department will classify each treatment facility by considering the treatment facility complexity, source of water, type of treatment performed and, for surface water systems only, size. This classification is based on, but may not be limited to, the criteria in Table 1 of this rule. Other treatment technologies not listed in Table 1 will be considered on a case-by-case basis. From this classification process, the department will determine the certification level that a chief operator must have to supervise the operation of the treatment facility. Treatment facilities (except as provided in paragraph (3)(B)1 of this rule) will remain classified at the level determined prior to August 1, 2001 or will be classified as indicated by Table 1 of this rule, whichever is the higher classification.

(3)(B) The department will classify each distribution system by size and complexity. This classification is based on, but may not be limited to, the criteria in Table 2 of this rule. Other distribution technologies will be considered on a case-by-case basis. From this classification process, the department will determine the certification level that the chief operator must have to supervise the operation of the distribution system.

(3)(B)1. Systems that only chlorinate, reduce the hardness of the water by ion exchange, or provide no treatment will be classified as distribution systems.

(3)(B)2. DS-III distribution system operator certificates shall be issued to all operators who possess a valid Missouri drinking water system operator certificate on August 1, 2001.

(3)(C) The classification of public water systems, the operational control of which relies on extensive instrumentation, automation and SCADA systems, will be determined on a case-by-case basis.

(3)(D) If changes in the method of classifying water systems result in a reclassification of a water treatment system, then the chief operator shall receive the appropriate certification to continue as chief operator.

(3)(E) A public water system owner can request in writing a hearing before the department to appeal the system's classification. The hearing shall be conducted by the director of the department or a hearing officer designated by the director.

Table 1. Water Treatment System Classification

The highest level applicable to the system is the classification of the system. | +----system. -----+ Classification +----------+----+ Source Water |Surface Water source, with treatment facility capacity greater than |1.5 Million Gallons per Day A | -----+ Surface Water source, with treatment facility capacity less Ground Water Under Direct Influence of Surface Water (GWUDI) В +----

----+ Purchased water, with further treatment by the purchasing . |(other than chlorination or ion exchange softening) D | system _____ --+----+ Ground Water (Not GWUDI), with treatment other than chlorination or ion exchange softening D _____ _____+ Ground Water (Not GWUDI) or Purchased Water with chlorination or ion |See Classification| exchange softening only Table 2 _____ ----+ Ground Water (Not GWUDI) or Purchased Water with no treatment ____+ ----+ Disinfection |Chlorine Dioxide В ______ ----+ Ozone В +---------+-----+ |Ultra Violet Light D _____ ----+ Gas Chlorination with one-ton containers С _____ Gas Chlorination, Calcium or Sodium Hypochlorination in combination with other treatment other than ion exchange softening D _____ Chloramines D _____ _____+ Chemical (Chemical Oxidation (example-potassium permanganate) Treatment ____+ _____ ----+ |Coagulation-Groundwater С

_____ Coagulation-Surface Water В +-----Fluoridation D +----|Ion Exchange (for purposes other than softening including С processes such as nitrate removal) _____ ____+ Lime/Soda Softening С _____ ----+ Sequestration D ---------+ pH, alkalinity adjustment С ____+ Physical |Adsorption (example-Activated Carbon) С Treatment ____+ _____ ----+ Aeration (examples-cascade, diffused, packed tower, slat tray, spray) | D +----_____ ----+ |Filtration (example-greensand, pressure, rapid gravity, slow sand) С +-----_____ ----+ Reverse Osmosis, Membrane Filtration, Ultrafiltration В +-----_____ -----+ |Ion Exchange (for softening) is included in all treatment and Each type distribution certifications. The level of certification required and level will be determined by the other treatment or distribution characteristics as appropriate _____ +----+

_____ _____ ----+ The highest level applicable to the system is the classification of the system. _____+ Minimum Classification +----------+ |Population |Greater than 10,001 | DS III | served (by +---------+ distribution |Between 3,301 to 10,000 DS II _____+ |Up to 3,300 DS I ----+-----+ Pressure Zones Multiple, interconnected pressure zones DS II _____+_____ _____ Single pressure zone in system DS I -----+ Distribution | Multiple sources (distributed water is blended from more than one | DS III | Source Water |treatment facility, well, or purchased source and finished waters from various sources are substantially different in chemical characteristics) _____ ----+----_____+ |Multiple sources (distributed water is blended from more than one DS II treatment facility, well, or purchased source and finished waters from various sources are substantially the same in chemical characteristics) +----_____ _____+ Single source (distributed water comes from a single DS I treatment

Table 2. Water Distribution System Classification.

[facility, well, or purchased from a single source at any one time) -----+-----System Storage Multiple gravity storage facilities or water must be pumped from DS II storage facility _____ ----+ Pneumatic tanks or single gravity storage "floating on DS I system" -----+ ValvesAltitude valves in systemDS II| _____+ Pressure reducing valves necessary on customer lines DS II +-----------+ Disinfection |Gas Chlorination is the only distribution system treatment DS II _____ Calcium or Sodium Hypochlorite is the only distribution system | DS I | |treatment _____ _____+ Water in distribution systems from surface water source is DS III |re-chlorinated ____+ _____ |Fire |Fire protection is provided by distribution system DS II Protection ____+ _____ -----+ No fire protection provided by distribution system DS I -----+ [Ion Exchange (for softening) is included in all treatment and distribution Each type and certifications. The level of certification required will be determined by the other | level | treatment or distribution characteristics as appropriate _____ _____

(4) System Requirements.

(4)(A) The water system owner shall place the direct supervision of each treatment facility and each distribution system under the responsible charge of a chief operator.

(4)(A)1. The chief operator shall possess a valid certificate equal to or greater than the classification of the treatment facility or distribution system.

(4)(A)2. The chief operator can be responsible for both the water treatment facility and distribution system at the owner's discretion.

(4)(A)3. The chief operator shall have overall responsibility for no more than one (1) surface water treatment system under one public water system identification number, unless otherwise approved by the department on a case-by-case basis.

(4)(A)4. The name of the chief operator shall be supplied to the department by the owner of the public water system and will be on file at all times.

(4)(A)5. In the event the chief operator is no longer available to serve, the owner of the public water system shall notify the department of the vacancy within ten (10) working days and shall appoint an interim operator. The interim operator shall be considered the system's certified chief operator for the purposes of complying with 10 CSR 60-14.010 and 10 CSR 60-14.020 on a temporary basis until a properly certified chief operator is hired. Following consultation with the public water system owner, the department will establish a schedule of activities and a timeline for the system to have a certified chief operator who has met all applicable certification requirements.

(4)(A)6. Public water systems shall have a contingency plan for a standby replacement chief operator to be available at all times. This may be, for example, a second employee certified at the chief operator level, a mutual assistance agreement with a neighboring system, or a prearrangement with a contract operator.

(4)(A)7. The owner shall notify the department in writing within ten (10) working days after the chief operator is replaced.

(4)(B) If modifications to the public water system change the system's classification to a higher level, the chief operator shall be required to obtain the higher level certificate by examination.

(4)(C) All operating personnel making independent process control/system integrity decisions about water quality or quantity that affect public health must be certified. This will not typically include, for example, maintenance personnel implementing process control/system integrity decisions made by a certified operator.

(4)(D) Possession of a letter of examination results does not qualify an individual to serve as a certified operator or certified chief operator for a public water system. An individual is not certified until the department issues the appropriate operator certificate.

(4)(E) All process control/system integrity decisions about water quality or quantity that affect public health must be made by a certified operator based on procedures approved by the chief operator.

(4)(F) Contract Operator Agreement.

(4)(F)1. Public water systems employing a certified chief operator through a contract operator ("circuit rider") arrangement to meet the requirements in subsection (4)(A) shall have a written agreement indicating the responsibilities of the operator, including but not necessarily limited to:

(4)(F)1.A. The minimum frequency of routine visits to the water treatment facility or distribution system;

(4)(F)1.B. The operator's duties and responsibilities;

(4)(F)1.C. The minimum hours the operator will be present for each routine visit;

(4)(F)1.D. The certification level required by the department for the treatment facility and/or distribution system that the operator is responsible for;

(4)(F)1.E. The level of certification held by the contract operator;

(4)(F)1.F. The minimum response time for the operator to be at the water system in the event of an emergency; and

(4)(F)1.G. The number of employees, if any, hired to assist.

(4)(F)2. Circuit rider operators and other contract operators who are performing the duties of chief operator shall be held accountable for operational decisions made in their stead.

(4)(F)3. A copy of the current agreement shall be on file at the system at all times and shall be provided to the department upon request.

(4)(G) The department may establish minimum operator oversight requirements for facilities with extensive instrumentation, automation and SCADA systems. Minimum operator oversight determinations will be made on a case-by-case basis.

(5) Violations.

(5)(A) No person, firm, corporation, municipal corporation or other governmental subdivision or agency shall operate a public water system unless the competency of the chief operator to operate the facility is duly certified by the department as provided in 10 CSR 60-14.020 or 10 CSR 60-14.010(4)(A)5. except during periods of emergency or disaster.

(5)(B) No person shall perform the duties of a chief operator without being duly certified under the provisions of 10 CSR 60-14.020 or 10 CSR 60-14.010(4)(A)5.

(5)(C) Any person, including any firm, corporation, municipal corporation or other governmental subdivision or agency who violates any provisions of this rule will be subject to the penalty provisions of sections 640.130 and 640.131, RSMo.

10 CSR 60-14.020 Certification Of Public Water System Operators

PURPOSE: This rule sets forth requirements for obtaining and renewing a water system treatment or distribution operator certificate, including experience, education, application and examination requirements. Procedures for denial, suspension and revocation of an operator's certificate are also established.

(1) Training and Experience Required for Certification.

(1)(A) Actual drinking water treatment or distribution operating experience means the skills and knowledge acquired from making or acting upon day-to-day process control/system integrity decisions rather than from textbook study or supervisory observation. It means the applicant has actually operated a water treatment facility or distribution system, depending on the certificate sought. In addition, the applicant should have experience in some combination of water system operational tasks such as: sample collection, routine operational tests, interpretation of test results, calculation of chemical dosages and subsequent adjustment of chemical feeders, flow rate and pressure adjustments, filter backwash, water main repair, disinfection and flushing and completion of operational reports.

(1)(B) Equivalent drinking water treatment facility or distribution system operating experience means skills and knowledge acquired from education as described in this rule or work experience that has a substantial relation to drinking water treatment or distribution, depending on the certificate sought.

(1)(C) In order to be eligible for a certificate, the applicant must have accumulated actual or equivalent operational experience and in accordance with Tables 1 and 2.

+	
+ Certificate Level 	Minimum Actual and Equivalent Experience
+ A facility equivalent)	Five and one-half (5 1/2) years of water treatment operating experience (of which two (2) years may be
+ B facility equivalent)	Three and one-half $(3 \ 1/2)$ years of water treatment operating experience (of which one (1) year may be

Table 1. Experience Requirements for a Water Treatment Certificate.

++ C facility 	One and one-half (1 1/2) year of water treatment operating experience (which may be equivalent).
+ D experience 	Six (6) months of water treatment facility operating (which may be equivalent)
+	

Table 2. Experience Requirements for a Distribution Certificate.

---+ Certificate Level | Minimum Actual and Equivalent Experience Requirements _____ DS-III | Three (3) years of water distribution system operating experience (of which one (1) year may be equivalent) _____+ ---+ DS-II | One (1) year of water distribution system operating experience (of which six (6) months may be equivalent) _____ Six (6) months of distribution system operating DS-I experience (which may be equivalent) ______ ---+

(1)(D) Years of equivalent experience shall be computed from the criteria in Table 3.

Table 3. Equivalent Experience.

+-----+
| 1. Graduation from an approved one (1) year certificate program in
1 year equivalent experience |
 water/wastewater technology
|
+------+
| 2. College level course in related field of chemical/biological/

```
1 month equivalent
   environmental or allied science or public health (grade C or better)
experience per three (3)
semester hours (maximum of
6 months of credit)
-----+
3. Two (2)-year associate degree in related field (chemical/biological/
1 1/2 years equivalent experience
                        environmental or allied science or public health)
-----+
4. Four (4)-year degree or higher in related field (chemical/biological/
2 years equivalent experience
   environmental allied science or allied sciences or public health, or
   civil, mechanical, electrical or related engineering degree)
_____
 -----+
5. Department-approved water treatment training course of at least
1/2 year equivalent treatment
  forty-five (45) contact hours (4.5 CEUs)
facility experience per course
(maximum credit of 1 1/2 years)
(For multi-day courses, attendance |
of at least eighty percent (80%)
of the course hours is required to
receive credit.)
+-----
                           -----
   _____+
6. Department-approved water distribution system-training course of at
1/2 year equivalent distribution
                       least thirty-five (35) contact hours (3.5 CEUs)
system experience per course
(maximum credit of 1 year)
(For multi-day courses, attendance |
of at least eighty percent (80%) of |
the course hours is required to
receive credit.)
 -----+
```
(1)(E) Equivalent experience credit will be given for department-approved courses developed in a modular format upon completion of all the modules.

(1)(F) Vocational training related to water utilities will be considered for a maximum of six (6) months' equivalent experience credit.

(1)(G) Upon submission of documentation to the department, the number of years of equivalent experience for formal or vocational training will be calculated.

(1)(H) Documentation submitted for actual and equivalent experience credit consideration which does not fit previously mentioned criteria will be evaluated by the department based on time worked and the relationship to water treatment or distribution. While water system engineering, construction, and safety are water system activities, they are insufficient experience in themselves to be considered actual operating experience. Equivalent experience credit for the purpose of meeting the experience requirement is limited to the maximum years allowed in Tables 1 and 2 of this rule. (Note: The experience allowed for high school equivalency under subsection (1)(N) is in addition to this limit.)

(1)(I) Examples of Actual and Equivalent Operating Experience.

(1)(I)1. Actual experience includes, but is not necessarily limited to, the following examples:

(1)(I)1.A. Experience in performing water system operational tasks such as: sample collection, routine operational tests, interpretation of test results, calculation of chemical dosages and subsequent adjustment of chemical feeders, flow rate and pressure adjustments, filter backwash, water main repair, disinfection and flushing and completion of operational reports;

(1)(I)1.B. Experience in making or acting upon day-to-day process control/system integrity decisions;

(1)(I)1.C. Working as laboratory personnel within a public water system and performing analytical tests, interpreting the results and having the authority to determine needed process control changes qualifies as actual treatment experience;

(1)(I)1.D. Providing repair and maintenance of pumps, distribution system maintenance, pump station repair, mechanical equipment repair and installation, etc. will be credited with actual distribution and equivalent treatment experience;

(1)(I)1.E. Consulting engineers will be credited with actual operating experience for experience in making day-to-day process control/system integrity decisions regarding the water treatment facility or distribution system. In order for actual experience to be considered the engineer shall provide documentation of beginning and ending employment dates and the time worked involving these day-to-day process control/system integrity decisions. A letter of verification substantiating the nature of the operating experience from the owner or water manager of each system named shall be included in the application for certification; and

(1)(I)1.F. Managers and supervisors making process control/system integrity decisions regarding the treatment facility or distribution system will be credited with actual operating experience.

(1)(I)2. Equivalent experience.

(1)(I)2.A. Equivalent treatment experience includes but is not necessarily limited to the following examples:

(1)(I)2.A.(I) Consulting engineers conducting work in design and construction of water treatment facilities;

(1)(I)2.A.(II) Experience by individuals who perform wastewater analytical tests or drinking water analytical tests for others but do not interpret the results and determine the subsequent needed process control changes;

(1)(I)2.A.(III) Wastewater treatment plant operators; and

(1)(I)2.A.(IV) Swimming pool operation and maintenance involving water treatment will receive one-quarter (1/4) credit for actual employment time for a maximum allowable six (6) months of equivalent experience credit for water treatment certification.

(1)(I)2.B. Equivalent distribution experience includes but is not necessarily limited to the following examples:

(1)(I)2.B.(I) Consulting engineers conducting work in design and construction of water distribution systems;

(1)(I)2.B.(II) Public health officials who inspect public water systems;

(1)(I)2.B.(III) Water systems administrative personnel, such as secretaries, meter readers and clerks, etc. who perform such tasks as meter reading, billing and handling of complaints over the telephone, etc.;

(1)(I)2.B.(IV) A developer, contractor or employee who has assisted in the installation of water mains or the pump house, but who has not yet accrued actual experience operating the new distribution system;

(1)(I)2.B.(V) Experience by individuals within a public water system whose sole water system operational duty is sampling;

(1)(I)2.B.(VI) Plumbers will be credited with equivalent distribution experience only;

(1)(I)2.B.(VII) Wastewater collection system operators will be credited equivalent water distribution experience only.

(1)(I)2.C. Experience in the following areas will be credited with equivalent experience for both treatment and distribution certification:

(1)(I)2.C.(I) State department water system inspectors and engineers working with public water systems; and

(1)(I)2.C.(II) Boiler water and other industrial use water treatment.

(1)(I)3. Examples of work experience which may have a relationship to a public water system but are not generally considered for actual or equivalent operating experience credit.

(1)(I)3.A. A superintendent or manager of public works, water commissioner, mayor, board members, councilpersons or other management positions will not be credited as having actual experience if they perform only general administrative duties and do not make day-to-day process control/system integrity decisions.

(1)(I)3.B. Private laboratory personnel who only collect samples from public water systems will not receive actual or equivalent experience credit.

(1)(J) Any person not possessing the necessary water system experience required for a particular level of certification may take the examination. Examinee's applications are not evaluated for adequate experience until after they have passed the examination.

(1)(K) Upon successful completion of the examination, the individual will have to obtain the necessary applicable water treatment or distribution system experience within the following time frames to be considered for certification:

(1)(K)1. For all levels of examinations taken on or after August 1, 2001, examinees shall have eighteen (18) months from the date of the examination;

(1)(K)2. For A and B level examinations taken prior to August 1, 2001, examinees shall have two (2) years from the date of the examination; and

(1)(K)3. For C and D level examinations taken prior to August 1, 2001, examinees shall have one (1) year from the date of the examination.

(1)(L) If the necessary experience is not obtained within these time frames, the individual must reapply and reexamine.

(1)(M) The minimum age for certification shall be eighteen (18) years.

(1)(N) Education Requirement.

(1)(N)1. The minimum education requirement for certification is fulfilled by meeting any one (1) of the following conditions: a high school diploma; a general equivalency diploma (GED); successful completion of special department-approved training appropriate to the type of certification sought; or six (6) months of experience.

(1)(N)2. Training or experience used to meet the education requirement shall not be counted for equivalent experience credit. Training or experience used to meet the education requirement is not included in the maximum limit on equivalent experience in subsections (1)(C) and (1)(D).

(2) Application for Certification Examina-tion.

(2)(A) Application for certification examination shall be made to the department on forms provided by the department.

(2)(A)1. The completed application must be received by the department at least thirty (30) days prior to the examination date.

(2)(A)2. Failure to provide complete working experience information or academic transcripts with the application will result in no operating experience or education credit given for the incomplete items.

(2)(B) The application fee for certification as a water treatment facility or a water distribution system operator shall be forty-five dollars (\$45) and shall accompany the application. This fee includes the initial examination fee.

(2)(C) An individual applying to take the certification examination will be allowed to reschedule two (2) times within one (1) year of the application date. After one (1) year from the date of the initial application, the individual must reapply as required in subsections (2)(A) and (B) of this rule.

(3) Examination.

(3)(A) The examination application for each applicant must be approved by the department.

(3)(B) A passing score of seventy percent (70%) is required in order to become certified.

(3)(C) Any examinee who fails to receive a passing grade may not repeat that level examination for a period of not less than sixty (60) days. The applicant must submit a new application for each examination. A fee of twenty dollars (\$20) shall accompany the application for each subsequent exam at that level.

(3)(D) Examination shall be held at a frequency of not less than four (4) times annually for the purpose of examining applicants for certification at a time and place designated by the department.

(3)(E) Based on the subjects an operator needs to know for a particular type and level of certification, examinations shall contain, but shall not necessarily be limited to, questions pertaining to: the Missouri Public Drinking Water rules; general water systems knowledge; water quality; applied mathematics; chemistry; biology; environmental sciences; laboratory testing procedures; hydraulics; pumping systems; water storage facilities; system controls; backflow prevention; and water treatment or distribution system operation.

(3)(F) Any examinee who fails a certification examination three (3) times and has not successfully completed a department-approved multi-day training course within the previous twelve (12) months that is appropriate to the type and level of certification being sought must do so prior to any further reexamination at that level.

(3)(G) An individual holding a valid Missouri operator certificate shall not be allowed to take an examination of a type and level equal to or lower than their existing certificate.

(3)(H) An examinee who has passed the exam for a particular type and level of certification but did not obtain the necessary experience within the time period allowed in subsection (1)(K) of this rule, will be allowed to reexamine for that level and type of certification.

(4) Certification Without Examination (Grandparenting).

(4)(A) Grandparenting is permitted only to operators in responsible charge of systems that have not been required by the department to have a certified operator prior to August 1, 2001. This includes operators in responsible charge of the distribution system whose responsibilities are separate from those of the operator in responsible charge of the treatment system.

(4)(B) Certificates in appropriate classification type and level shall be issued without examination to no more than three (3) operators in responsible charge when the following conditions are met:

(4)(B)1. The owner of the public water system attests that the individual has been an operator in responsible charge making process control/system integrity decisions for at least one (1) year prior to the date of the application for grandparenting;

(4)(B)2. An application is submitted by February 5, 2003 on forms provided by the department for each operator in responsible charge being grandparented. Each application shall be signed and dated by the owner and the individual designated for grandparenting; and

(4)(B)3. A nonrefundable operator's certificate fee of forty-five dollars (\$45) is submitted for each certificate requested.

(4)(C) A grandparented certificate will be valid only for the operator named on the certificate and only at the water treatment facility or distribution system named on the certificate. Any certificate issued under this provision shall be identified as restricted.

(4)(D) If the classification of the treatment system or distribution system changes to a higher level due to design modifications, the grandparented certification will no longer be valid.

(4)(E) If the grandparented certificate is allowed to expire, the operator must meet the requirements for regular, nongrandparented certification, including passing the appropriate examination.

(4)(F) The operator may replace the restricted, grandparented certificate with a non-restricted water certificate appropriate to the water system's classification level at any time by passing the applicable examination and meeting the experience requirements.

(4)(G) Grandparented operators must, within three (3) years of certification, meet all requirements for renewing the grandparented certificate. In order for a grandparented certificate to be renewed the following conditions must be met:

(4)(G)1. The water system owner must certify in writing to the department that the operator named on the certificate continues to be an operator in responsible charge for the public water system;

(4)(G)2. A completed renewal application and fee of forty-five dollars (\$45) must be submitted for each certificate; and

(4)(G)3. The department-approved renewal training must be completed prior to the expiration of the certificate.

(5) Reciprocity.

(5)(A) Certificates may be issued, without examination, to any person who holds a valid certificate attained by examination in any state, territory or possession of the United States or any country or any other certifying authority, if the requirements for certification of operators under which the person's certificate was issued do not conflict with the provisions of this rule and are at least as stringent as this rule.

(5)(B) The operator requesting certification by reciprocity must have actual water treatment or distribution working experience with a public water system appropriate to the certification sought in the state, province, country, territory or other authorized area which issued the certificate for which reciprocity is requested.

(5)(C) Application for reciprocity shall be made on the form provided by the department and submitted with an application fee of sixty-five dollars (\$65) to the department within one hundred eighty (180) days after beginning employment with a public water system in Missouri.

(5)(D) Reciprocal certificates will not be issued to persons who are not employed with a public water system in Missouri. If employment with a Missouri public water system is dependent upon Missouri certification, the department will send a letter of intent to issue a certificate to the applicant. The letter of intent is valid for one hundred eighty (180) days provided that the certificate that the application is based upon remains valid. After that time, the applicant must reapply.

(5)(E) The level of certificate issued will be determined by comparing the original certifying agency's requirements for certification to Missouri requirements.

(6) Certificates.

(6)(A) Each applicant having met the requirements of a specific certification classification as outlined in this rule and having passed the appropriate examination shall be issued an appropriate certificate.

(6)(B) A certified operator meeting the requirements for a higher level of certification by examination and experience, will be issued the higher level certificate. Upon this issuance, the certificate for the lower classification will become invalid.

(6)(C) The certificate shall be issued for a three (3)-year period. Certificates shall be renewed according to the provisions of section (8).

(7) Denial, Suspension or Revocation of Certificate.

(7)(A) The department may deny a certificate to an applicant if the individual is unqualified, has practiced fraud or deceit in applying for the certificate or has willfully violated any provision of 10 CSR 60.

(7)(B) Based on the frequency and severity of violations of <u>10 CSR 60</u>, the department may suspend or revoke the certificate(s) of an operator if it is found that the operator has practiced fraud or deception in obtaining the certificate, exhibited gross negligence, malpractice or incompetence in operating a public water system, sabotaged the water system, misled or lied to a government official regarding the water system, participated in sample tampering or selective sampling, falsified facility operating records or reports required by <u>10 CSR 60</u> or willfully violated <u>10 CSR 60</u>.

(7)(C) Suspension shall be for a period not to exceed one (1) year.

(7)(D) Notice of suspension or revocation shall be issued by the department with service by hand delivery or through certified mail to the certified operator's last known address. The notice shall state the reason(s) for suspension or revocation, the effective date of the suspension or revocation and any action(s) that the certified operator may take to contest the suspension or revocation.

(7)(E) The operator shall be afforded a hearing before the department provided that a written request for a hearing is received by the department within thirty (30) days of notification that

suspension or revocation proceedings have been initiated. The hearing shall be conducted by the director or a hearing officer designated by the director and shall be conducted in accordance with the procedures set forth in sections 536.070, 536.073, 536.077, 536.080 and 536.090, RSMo.

(7)(F) The suspended or revoked certificate shall be returned to the department by hand delivery, certified mail with return receipt, or registered mail.

(7)(G) Any person wishing to become certified after revocation of a certificate may do so only by examination. Applications for examination to become certified may not be filed until one (1) year has elapsed following the date of revocation. Acceptance of any application for examination shall be at the discretion of the department.

(7)(H) Certification by reciprocity or examination shall not be available to an individual whose certificate has been suspended or revoked until after the period of suspension or revocation.

(7)(I) Operators with a suspended certificate will receive credit for department-approved training courses attended during the period of suspension.

(7)(J) Should a suspended certificate be due for renewal during the period of suspension the operator shall submit the renewal application and fee prior to the expiration date. The renewed certificate will be held by the department until the end of the suspension period.

(7)(K) No individual shall make water system process control/system integrity decisions or perform any duties requiring certification while their certificate is suspended or revoked.

(8) Certificate Renewal.

(8)(A) All certificates issued by the department shall be renewed at least every three (3) years, unless prorated by the department to some other time frame.

(8)(B) All training must be completed prior to the expiration date of the certificate and in accordance with subsection (8)(C). Only training approved by the department will be accepted.

(8)(C) Before a certificate will be renewed, the applicant must submit documentation of training sufficient to meeting the minimum hours for the certificate level, as indicated in Table 4.

Table 4. Minimum	Training	Required	per Renewal	Cycle.
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+	
Certification Level	Minimum Training Required
A	30 hours
н В	30 hours
C	30 hours
D	20 hours

+	30 hours
DS II	20 hours
DS I	10 hours

(8)(D) The department will send a renewal notice to the applicant's last known address at least sixty (60) days prior to the expiration of the certificate. Failure of the department to notify the certified operator of the certificate's pending expiration does not relieve the certified operator of the responsibility for renewing the certificate.

(8)(E) An application for renewal shall be made on the form provided by the department prior to the lapse of the operator's certificate. A completed renewal application and fee of forty-five dollars (\$45) must be submitted for each certificate.

(8)(F) Any certificate not renewed within the two (2) months following the expiration date will be considered lapsed. Any operator with a lapsed certificate will have to submit a new application and reexamine as provided in sections (3) and (4) of this rule.

(8)(G) A late fee of ten dollars (\$10) per month or fraction of it, up to a total of twenty dollars (\$20), shall be charged for any certificate renewed after the expiration date.

(8)(H) If a certified operator has submitted a timely and complete application for renewal, possesses sufficient renewal training and, through no personal fault, the department is unable to issue a new certificate before the expiration date of the current certificate, the current certificate shall remain valid until the department issues its replacement or denies renewal.

(8)(I) An operator shall notify the department in writing of any change in status including, but not necessarily limited to, a change of address, name, telephone number or employer. Submittal of E-mail address and fax number are encouraged. E-mail and fax communications are acceptable methods of written communications under this provision.

(8)(J) Individuals certified prior to August 1, 2001 may count their approved water treatment training hours toward the first renewal of their distribution certificate issued under 10 CSR 60-14.010(3)(B)2.

(8)(K) The first time an operator renews a distribution certificate issued under 10 CSR 60-14.010(3)(B)2. the operator may elect to receive a distribution certificate of a lower level if the lower certification level is, at a minimum, equal to the classification of the distribution system they operate.

(9) All certification and examination fees submitted are nonrefundable and nontransferable.

10 CSR 60-14.030 Operator Training

PURPOSE: This rule establishes criteria for approval of training courses.

(1) Only training related to water system operations and maintenance, treatment facilities or distribution systems approved by the department will be given credit.

(1)(A) Training requirements for renewal will be based on the level of certification held by the operator.

(1)(B) Training should include an update of new regulation requirements.

(1)(C) Not more than one-half (1/2) of the total renewal training hours required in a renewal period shall be credited from safety, supervisory, management, administration and financial training and general computer courses.

(2) The following are examples of acceptable training for renewal credit and are not intended to be all-inclusive. Renewal training may include:

(2)(A) Information on regulations, operations, maintenance, construction, testing, record keeping, and repair of equipment including pumps, control valves, altitude valves, fire hydrants, flush hydrants, chlorinators, chemical feeders, elevated tanks, standpipes, reservoirs, pressure tanks, bladder tanks, filters, backflow devices, meters, control systems, and standby power generators;

(2)(B) Information on operations and process control of water treatment system processes including aeration, rapid mix, flocculation, sedimentation, filtration, disinfection, chemical oxidation, chemical precipitation, pH adjustment, stabilization, fluoridation, absorption, ion exchange, reverse osmosis, sludge handling, sequestration, and corrosion control;

(2)(C) Information applicable to water systems on mathematics, chemistry, geology, hydrology, limnology, meteorology, microbiology, hydraulics, cartography, and epidemiology;

(2)(D) Sampling and laboratory techniques for all samples, and analytical analysis required under Chapters 4, 5 and 15 of <u>10 CSR 60</u> and as needed for process control;

(2)(E) Safety practices applicable to water system operations including cardiopulmonary resuscitation, first-aid, confined space entry, shoring and trenching, hazardous materials handling, electrical safety, traffic control at construction sites, self-contained breathing apparatus, chlorine repair kit, and tower climbing;

(2)(F) Common operational/maintenance system procedures including development and implementation of a main flushing program, entire system disinfection and flushing, main repair including disinfection flushing, pressure testing, fire flow measurement, leak detection, tower inspection for sanitary defects, draw-down testing, and loss/leakage calculations; and

(2)(G) Computer classes directly intended for use at water utilities. Examples include but are not limited to: Supervisory Control and Data Acquisition (SCADA) and other water system

operational programming, spreadsheets and databases for tracking and trending laboratory results, scheduling and tracking maintenance. Similar training intended for other types of utilities will be considered on a case-by-case basis.

(3) The following examples provide guidance on unacceptable training for renewal credit and are not intended to be all-inclusive:

(**3**)(A) Introduction to English;

(**3**)(B) History;

(3)(C) Welding;

(**3**)(D) Small motor repair;

(**3**)(E) Lawnmower safety; and

(3)(F) Commercial drivers license training.

(4) All organizations or individuals sponsoring training for water system operators shall submit the following to the department for approval. This information should be submitted to the department at least thirty (30) days prior to the training:

(4)(A) Date and location of the training;

(4)(B) Name, address and telephone number of person to contact regarding the training;

(4)(C) Course outline showing the topic(s) to be presented and time allotted for each (including beginning and ending times);

(4)(D) The name(s) of the instructor(s) and his/her qualifications (not just title or company name);

(4)(E) List of any audiovisual materials to be used such as videotapes, slides, slide/tape presentations, films and overheads; and

(**4**)(F) Handouts.

(5) The department should be notified at least thirty (30) days in advance of any subsequent session(s) of an approved course.

(6) Credit is based upon actual contact time in the training. All breaks and meal times must be noted on the agenda and will not count toward contact time. Excessive time allotted for introductions or welcomes will not count toward contact.

(7) For multiday courses, no credit will be given prior to the completion of the course. The completion date is the last day of the course. An eighty percent (80%) attendance, based on the total course length in hours, is required to receive credit.

(8) The minimum length of a training course eligible for renewal credit shall be one (1) contact hour. Training credit for a course shall be rounded down to the nearest one-half (0.5) hour. Approved training issued continuing education units (CEUs) will be given credit at the rate of ten (10.0) hours per one (1.0) CEU.

(9) Training provided by the national offices of organizations involved in water treatment or distribution, wastewater treatment, backflow prevention and other related fields or other out-of-state entities will be reviewed for renewal credit on an individual basis. The operator is responsible for retaining proof of training attended and must provide documentation that meets the requirements of section (4) of this rule.

(10) All approvals will be by written correspondence. The approval will include a course attendance roster form that will show the course name, coordinator, date, location, course identification number and amount of renewal credit.

(11) Advertisement of any training shall not state that the program has been approved for credit until the department has issued its formal approval and assigned a course identification number and amount of credit. Any advertisement that states that the training is department-approved must include the course identification number and amount of credit.

(12) Each organization or individual providing training should provide certificates of completion to the attendees. The certificate should include the following:

(12)(A) Attendee's name;

(12)(B) Name of the course;

(**12**)(C) Credit;

(12)(D) Course identification number;

(12)(E) Date that the course was held;

(12)(F) Location of the course; and

(12)(G) Name of the course coordinator or instructor.

(13) Training providers shall submit the course attendance roster to the department within fifteen(15) working days of the completion of the course. Information on the roster shall include:

(13)(A) Name of the course;

(**13**)(B) Credit;

(13)(C) Course identification number;

(13)(D) Date that the course was held;

(13)(E) Location of the course;

(13)(F) Name of the course coordinator or instructor;

(13)(G) Names of all attendees;

(13)(H) Certificate number of all attendees, if applicable; and

(13)(I) For multiday training courses, which sessions the individual attended.

(14) The department shall make known by a public means which courses and seminars are approved.

(15) Renewal credit shall be valid only for the renewal period in which it was earned. Renewal credit in excess of the required hours for the renewal period may not be carried over into any subsequent renewal training period.

10 CSR 60-15 Chapter 15--Lead And Copper

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15.090Monitoring Requirements For Lead And Copper In Source Water

10 CSR 60-15.010 General Requirements

PURPOSE: This rule gives an overview of requirements covered in the national primary drinking water regulations for lead and copper.

(1) Applicability and Effective Dates. The requirements of this chapter constitute the Missouri public drinking water rules for lead and copper. Unless otherwise indicated, each of the provisions of this chapter applies to community water systems and nontransient noncommunity water systems (after this referred to as water systems or systems).

(2) Scope. These rules establish a treatment technique that includes requirements for corrosion control treatment, source water treatment, lead service line replacement, and public education. These requirements are triggered, in some cases, by lead and copper action levels measured in samples collected at consumers' taps.

(3) Lead and Copper Action Levels.

(3)(A) 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 10 CSR 60-15.070 is greater than 0.015 milligrams/liter (mg/L) (that is, if the ninetieth percentile lead level is greater than 0.015 mg/L).

(3)(B) 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 10 CSR 60-15.070 is greater than 1.3 mg/L (that is, if the ninetieth percentile copper level is greater than 1.3 mg/L).

(3)(C) The ninetieth percentile lead and copper levels shall be computed as follows:

(3)(C)1. The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 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;

(3)(C)2. The number of samples taken during the monitoring period shall be multiplied by 0.9;

(3)(C)3. The contaminant concentration in the numbered sample yielded by the calculation in paragraph (3)(C)2 is the ninetieth percentile contaminant level;

(3)(C)4. For water systems serving fewer than one hundred (100) people that collect five (5) samples per monitoring period, the ninetieth percentile is computed by taking the average of the highest and second highest concentrations; and

(3)(C)5. For a public water system that has been allowed by the department to collect fewer than five (5) samples in accordance with 10 CSR 60-15.070(3), the sample result with the highest concentration is considered the ninetieth percentile value.

(4) Corrosion Control Treatment Requirements.

(4)(A) All water systems shall install and operate optimal corrosion control treatment as defined in 10 CSR 60-15.030.

(4)(B) Any water system that complies with the applicable corrosion control treatment requirements specified by the state under 10 CSR 60-15.020 and 10 CSR 60-15.030 shall be deemed in compliance with the treatment requirement contained in subsection (4)(A).

(5) Source Water Treatment Requirements. Any system exceeding the lead or copper action level shall implement all applicable source water treatment requirements specified by the state under <u>10 CSR 60-15.040</u>.

(6) Lead Service Line Replacement Requirements. Any system exceeding the lead action level after implementation of applicable corrosion control and source water treatment requirements shall complete the lead service line replacement requirements contained in <u>10 CSR 60-15.050</u>.

(7) Public Education Requirements. Pursuant to <u>10 CSR 60-15.060</u>, all water systems must provide a consumer notice of lead tap water monitoring results to persons served at the sites (taps) that are tested. Any system exceeding the lead action level shall implement the public education requirements contained in <u>10 CSR 60-15.060</u>.

(8) 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 section shall be completed in compliance with <u>10</u> <u>CSR 60-15.070</u>, <u>10 CSR 60-15.080</u>, <u>10 CSR 60-15.090</u> and 10 CSR 60-5.010(1).

(9) Reporting Requirements. Systems shall report to the state any information required by the treatment provisions of this section and 10 CSR 60-7.020.

(10) Record-keeping Requirements. Systems shall maintain records in accordance with 10 CSR <u>60-9.010</u>.

(11) Violation of National Primary Drinking Water Regulations. Failure to comply with the applicable requirements of 10 CSR 60-15.010-10 CSR 60-15.090, <u>10 CSR 60-5.010</u>, <u>10 CSR 60-7.020</u> and <u>10 CSR 60-9.010</u>, including requirements established by the state pursuant to these provisions, shall constitute a violation of the state public drinking water rules for lead, copper, or both.

10 CSR 60-15.020 Applicability Of Corrosion Control Treatment Steps To Small, Medium-Size And Large Water Systems

PURPOSE: This rule establishes deadlines for public water systems to complete corrosion control treatment required in <u>10 CSR 60-15.030</u> and to conduct associated monitoring.

(1) A large system (serving more than fifty thousand (50,000) persons) shall complete the corrosion control treatment steps as follows unless it is deemed to have optimized corrosion control under paragraph (1)(B)1 or 2. of this rule.

(1)(A) Treatment Steps and Deadlines for Large Systems.

(1)(A)1. The system shall conduct initial monitoring (10 CSR 60-15.070(4)(A) and 10 CSR 60-15.080(2)) during two (2) consecutive six- (6-) month monitoring periods by January 1, 1993.

(1)(A)2. The system shall complete corrosion control studies (10 CSR 60-15.030(3)) by July 1, 1994.

(1)(A)3. The department shall designate optimal corrosion control treatment (10 CSR 60-15.030(4)) by January 1, 1995.

(1)(A)4. The system shall install optimal corrosion control treatment (10 CSR 60-15.030(6)) by January 1, 1997.

(1)(A)5. The system shall complete follow-up sampling (10 CSR 60-15.070(4)(B)) and 10 CSR 60-15.080(3)) by January 1, 1998.

(1)(A)6. The department shall review installation of treatment and designate optimal water quality control parameters (10 CSR 60-15.030(7)) by July 1, 1998.

(1)(A)7. The system shall operate in compliance with the department-specified optimal water quality control parameters (10 CSR 60-15.030(8)) and continue to conduct tap sampling (10 CSR 60-15.070(4)(C)) and 10 CSR 60-15.080(4)).

(1)(B) A large system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this section if the system satisfies one (1) of the following criteria. Any such large system deemed to have optimized corrosion control, 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.

(1)(B)1. The system demonstrates to the satisfaction of the department that it has conducted activities equivalent to the corrosion control steps applicable to large systems. 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 10 CSR 60-15.030(7). Water systems deemed to have optimized

corrosion control shall operate in compliance with the department-designated optimal water quality control parameters in accordance with <u>10 CSR 60-15.030(8)</u> and continue to conduct lead and copper tap and water quality parameter sampling in accordance with <u>10 CSR 60-15.070(4)(C)</u> and <u>10 CSR 60-15.080(4)</u>. A system shall provide the department with the following information in order to support this determination:

(1)(B)1.A. The results of all test samples collected for each of the water quality parameters in $\underline{10}$ <u>CSR 60-15.030(3)(C)</u>;

(1)(B)1.B. A report explaining the test methods used by the water system to evaluate the corrosion control treatments listed in 10 CSR 60-15.030(3)(A), the results of all tests conducted, and the basis for the system's selection of optimal corrosion control treatment;

(1)(B)1.C. 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

(1)(B)1.D. The results of tap water samples collected in accordance with 10 CSR 60-15.070 at least once every six (6) months for one (1) year after corrosion control has been installed.

(1)(B)2. The water system submits results of tap water monitoring conducted in accordance with 10 CSR 60-15.070 and source water monitoring conducted in accordance with 10 CSR 60-15.090 that demonstrates for two (2) consecutive six- (6-) month monitoring periods that the difference between the ninetieth percentile tap water lead level, computed under 10 CSR 60-15.010(3)(C), and the highest source water lead concentration is less than the practical quantitation level for lead specified in 10 CSR 60-5.010(8)(B).

(1)(B)2.A. Those systems whose highest source water lead level is below the method detection limit may also be deemed to have optimized corrosion control under this paragraph if the ninetieth percentile tap water lead level is less than or equal to the practical quantitation level for lead for two (2) consecutive six- (6-) month monitoring periods.

(1)(B)2.B. Any water system deemed to have optimized corrosion control in accordance with this paragraph (1)(B)2. shall continue monitoring for lead and copper at the tap no less frequently than once every three (3) calendar years using the reduced number of sites specified in 10 CSR 60-15.070(3) and collecting the samples at times and locations specified in 10 CSR 60-15.070(4)(D)4.

(1)(B)2.C. Any water system deemed to have optimized corrosion control pursuant to this paragraph (1)(B)2. shall notify the department in writing pursuant to 10 CSR 60-7.020(1)(C) of any upcoming long-term changes in treatment or the addition of a new source as described in that subsection. The department must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system.

(1)(B)2.D. A system is not deemed to have optimized corrosion control pursuant to this paragraph (1)(B)2 and shall implement corrosion control treatment pursuant to subparagraph (1)(B)2.E of this rule unless it meets the copper action level.

(1)(B)2.E. Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control under paragraph (1)(B)2. shall implement corrosion control treatment in accordance with the deadlines in subsection (2)(A) of this rule. Any such large system shall adhere to the schedule specified in subsection (2)(A) of this rule for medium-size systems, with the time periods for completing each step being triggered by the date the system is no longer deemed to have optimized corrosion control under paragraph (1)(B)2.

(2) A small system (serving fewer than three thousand three hundred (3,300) persons) and a medium-size system (serving three thousand three hundred one to fifty thousand (3,301-50,000) persons) shall complete the corrosion control treatment steps specified as follows unless it is deemed to have optimized corrosion control under paragraph (2)(B)1., 2., or 3. of this rule:

(2)(A) Treatment Steps and Deadlines for Small and Medium-Size Systems.

(2)(A)1. The system shall conduct initial tap sampling (10 CSR 60-15.070(4)(A) and 10 CSR 60-15.080(2)) until the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under 10 CSR 60-15.070(4)(D). A system exceeding the lead or copper action level shall recommend optimal corrosion control treatment (10 CSR 60-15.030(1)) within six (6) months after the end of the monitoring period during which it exceeds one (1) of the action levels.

(2)(A)2. Within twelve (12) months after a system exceeds the lead or copper action level, the department may require the system to perform corrosion control studies (10 CSR 60-15.030(2)) within the following time frames:

(2)(A)2.A. For medium-size systems, within eighteen (18) months after the end of the monitoring period during which that system exceeds the lead or copper action level; or

(2)(A)2.B. For small systems, within twenty-four (24) months after the end of the monitoring period that system exceeds the lead or copper action level.

(2)(A)3. If the department requires a system to perform corrosion control studies under paragraph (2)(A)2. of this rule, the system shall complete the studies (10 CSR 60-15.030(3)) within eighteen (18) months after the department requires that those studies be conducted.

(2)(A)4. If the system has performed corrosion control studies under paragraph (2)(A)2. of this rule, the department shall designate optimal corrosion control treatment (10 CSR 60-15.030(4)) within six (6) months after completion of paragraph (2)(A)3. of this rule.

(2)(A)5. The system shall install optimal corrosion control treatment (10 CSR 60-15.030(6)) within twenty-four (24) months after the department designates that treatment.

(2)(A)6. The system shall complete follow-up sampling (10 CSR 60-15.070(4)(B) and 10 CSR 60-15.080(3)) within thirty-six (36) months after the department designates optimal corrosion control treatment.

(2)(A)7. The department shall review the system's installation of treatment and designate optimal water quality control parameters (10 CSR 60-15.030(7)) within six (6) months after completion of paragraph (2)(A)6. of this rule.

(2)(A)8. The system shall operate in compliance with the department-designated optimal water quality control parameters (10 CSR 60-15.030(8)) and continue to conduct tap sampling as specified in 10 CSR 60-15.070(4)(C) and 10 CSR 60-15.080(4);

(2)(B) A small- or medium-size water system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this section if the system satisfies one (1) of the following criteria. Any such system deemed to have optimized corrosion control, 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.

(2)(B)1. The system meets the lead and copper action levels during each of two (2) consecutive six- (6-) month monitoring periods conducted in accordance with 10 CSR 60-15.070.

(2)(B)2. The system demonstrates to the satisfaction of the department that it has conducted activities equivalent to the corrosion control steps applicable to medium-size or small systems under this section. If the department makes this determination, it shall provide the system with written notice explaining the basis for its decision and shall specify the water quality control parameters representing optimal corrosion control in accordance with 10 CSR 60-15.030(7). Water systems deemed to have optimized corrosion control under this paragraph shall operate in compliance with the department-designated optimal water quality control parameters in accordance with 10 CSR 60-15.030(8) and shall continue to conduct lead and copper tap and water quality parameter sampling in accordance with 10 CSR 60-15.070(4)(C) and 10 CSR 60-15.080(4). The system shall provide the department with the following information in order to support a determination:

(2)(B)2.A. The results of all test samples collected for each of the water quality parameters in $\underline{10}$ CSR 60-15.030(3)(C);

(2)(B)2.B. A report explaining the test methods used by the water system to evaluate the corrosion control treatments listed in 10 CSR 60-15.030(3)(A), the results of all tests conducted and the basis for the system's selection of optimal corrosion control treatment;

(2)(B)2.C. 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

(2)(B)2.D. The results of tap water samples collected in accordance with 10 CSR 60-15.070 at least once every six (6) months for one (1) year after corrosion control has been installed.

(2)(B)3. Any water system is deemed to have optimized corrosion control if it submits results of tap water monitoring conducted in accordance with 10 CSR 60-15.070 and source water monitoring conducted in accordance with 10 CSR 60-15.090 that demonstrates for two (2)

consecutive six- (6-) month monitoring periods that the difference between the ninetieth percentile tap water lead level computed under 10 CSR 60-15.010(3)(C) and the highest source water lead concentration is less than the practical quantitation level for lead specified in 10 CSR 60-5.010(5)(H).

(2)(B)3.A. Those systems whose highest source water lead level is below the method detection limit may also be deemed to have optimized corrosion control under this paragraph if the ninetieth percentile tap water lead level is less than or equal to the practical quantitation level for lead for two (2) consecutive six- (6-) month monitoring periods.

(2)(B)3.B. Any water system deemed to have optimized corrosion control in accordance with this paragraph (2)(B)3. shall continue monitoring for lead and copper at the tap no less frequently than once every three (3) calendar years using the reduced number of sites specified in 10 CSR 60-15.070(3) and collecting the samples at times and locations specified in 10 CSR 60-15.070(4)(D)4.

(2)(B)3.C. Any water system deemed to have optimized corrosion control pursuant to this paragraph (2)(B)3. shall notify the department in writing pursuant to 10 CSR 60-7.020(1)(C) of any change in treatment or the addition of a new source. The department may require any such system to conduct additional monitoring or to take other action the department deems appropriate to ensure that such systems maintain minimal levels of corrosion in the distribution system.

(2)(B)3.D. A system is not deemed to have optimized corrosion control pursuant to this paragraph (2)(B)3, and shall implement corrosion control treatment pursuant to subparagraph (2)(B)3.E. of this rule unless it meets the copper action level.

(2)(B)3.E. Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control under paragraph (2)(B)3. shall implement corrosion control treatment in accordance with the deadlines in subsection (2)(A) of this rule. Any such large system shall adhere to the schedule specified in subsection (2)(A) of this rule for medium-size systems, with the time periods for completing each step being triggered by the date the system is no longer deemed to have optimized corrosion control under paragraph (2)(B)3.

(2)(C) Any small- or medium-size water system that is required to complete the corrosion control steps due to its exceedance of the lead or copper action level may cease completing the treatment steps whenever the system meets both action levels during each of two (2) consecutive monitoring periods conducted pursuant to 10 CSR 60-15.070 and submits the results to the department. If any such water system after that exceeds the lead or copper action level during any monitoring period, the system (or the department, as the case may be) shall recommence completion of the applicable treatment steps, beginning with the first treatment step which was not previously completed in its entirety. The department may require a system to repeat treatment steps previously completed by the system where the department determines that this is necessary to implement properly the treatment requirements of this section. The department shall notify the system in writing of the determination and explain the basis for its decision. The requirement for any small- or medium-size system to implement corrosion control treatment

steps (including systems deemed to have optimized corrosion control) is triggered whenever any small- or medium-size system exceeds the lead or copper action level.

10 CSR 60-15.030 Description Of Corrosion Control Treatment Requirements

PURPOSE: This rule describes the corrosion control treatment requirements which are applicable to all water systems under <u>10 CSR 60-15.020</u>.

(1) Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, small (serving fewer than three thousand three hundred (3300) persons and mediumsize (serving three thousand three hundred one to fifty thousand (3301--50,000 persons) water systems exceeding the lead or copper action level shall recommend installation of one (1) or more of the corrosion control treatments listed in subsection (3)(A) which the system believes constitutes optimal corrosion control for that system. The department may require the system to conduct additional water quality parameter monitoring in accordance with 10 CSR 60-15.080(2) and perform corrosion control studies as described in this rule to assist the department in reviewing the system's recommendations.

(2) The department may require any small or medium-sized systems that exceeds the lead or copper action level to perform corrosion control studies under section (3) of this rule to identify optimal corrosion control treatment for the system.

(3) Performance of Corrosion Control Studies.

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

(3)(A)1. Alkalinity and pH adjustment;

(3)(A)2. Calcium hardness adjustment; and

(3)(A)3. The addition of a phosphate or silicate based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

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

(3)(C) The water system shall measure the following water quality parameters in any tests conducted under this section before and after evaluating the corrosion control treatments listed in paragraph (3)(A)1. of this rule:

(**3**)(**C**)1. Lead;

(**3**)(**C**)2. Copper;

(**3**)(**C**)3. pH;

(3)(C)4. Alkalinity;

(**3**)(**C**)5. Calcium;

(3)(C)6. Conductivity;

(3)(C)7. Orthophosphate (when an inhibitor containing a phosphate compound is used);

(3)(C)8. Silicate (when an inhibitor containing a silicate compound is used); and

(3)(C)9. Water temperature.

(3)(D) The water system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document these constraints with at least one (1) of the following:

(3)(D)1. Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another water system with comparable water quality characteristics; or

(3)(D)2. 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.

(3)(E) The water system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

(3)(F) On the basis of an analysis of the data generated during each evaluation, the water system shall recommend to the department, in writing, the treatment option that the corrosion control studies indicate constitutes optimal corrosion control treatment for that system. The water system shall provide a rationale for its recommendation along with all supporting documentation specified in this section.

(4) Based upon consideration of available information including, where applicable, studies performed under section (3) of this rule and a system's recommended treatment alternative, the department shall either approve the corrosion control treatment option recommended by the system, or designate alternative corrosion control treatment(s) from among those listed in subsection (3)(A) of this rule. When designating optimal treatment, the department shall consider the effects that additional corrosion control treatment will have on the water quality parameters and on other water quality treatment processes.

(5) The department, in writing, shall notify the system of its decision on optimal corrosion control treatment and explain the basis for this determination. If the department requests additional information to aid its review, the water system shall provide the information.

(6) Each system shall properly install and operate throughout its distribution system the optimal corrosion control treatment designated by the department.

(7) The department shall evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the water system and determine whether the system has properly installed and operated the optimal corrosion control treatment designated by the department. Upon reviewing the results of tap water and water quality parameter monitoring by the system, both before and after the system installs optimal corrosion control treatment, the department shall designate--

(7)(A) A minimum value or a range of values for pH measured at each entry point to the distribution system;

(7)(B) A minimum pH value, measured in all tap samples. That value shall be equal to or greater than 7.0, unless the department determines that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the system to optimize corrosion control;

(7)(C) If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor measured at each entry point to the distribution system and in all tap samples, that the department determines is necessary to form a passiviting film on the interior walls of the pipes of the distribution system;

(7)(D) If alkalinity is adjusted as part of optimal corrosion control treatment, a minimum concentration or a range of concentrations for alkalinity, measured at each entry point to the distribution system and in all tap samples;

(7)(E) If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium, measured in all tap samples.

(7)(F) The values for the applicable water quality control parameters listed in this section 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.

(8) 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 (7) of this rule for all samples collected under 10 CSR 60-15.080(4)-(6). Compliance with this section shall be determined every six (6) months, as specified under 10 CSR 60-15.080(4). A water system is out of compliance with the requirements of this section (8) 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 (1) or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the department. Daily values are calculated as follows. The department shall have discretion to delete results of obvious sampling errors from this calculation.

(8)(A) On days when more than one (1) measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both.

(8)(B) On days when only one (1) measurement for the water quality parameter is collected at the sampling location, the daily value shall be the result of that measurement.

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

(9) The department, upon its own initiative or in response to a request by a water system or other interested party, may modify its determination of the optimal corrosion control treatment or optimal water quality control parameters. 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 the change is necessary to ensure that the system continues to optimize corrosion control treatment requirements, explaining the basis for the department's decision and providing an implementation schedule for completing the treatment modifications.

10 CSR 60-15.040 Source Water Treatment Requirements

PURPOSE: This rule describes the required corrosion control treatment steps for a system's source water and establishes treatment requirement deadlines.

(1) The following are deadlines for completing source water treatment steps:

(1)(A) A system exceeding the lead or copper action level shall complete lead and copper source water monitoring under 10 CSR 60-15.090(2) and make a treatment recommendation to the department no later than one hundred eighty (180) days after the end of the monitoring period during which the lead or copper action level was exceeded;

(1)(B) The department shall make a determination regarding source water treatment within six (6) months after submission of monitoring results under subsection (1)(A) of this rule;

(1)(C) If the department requires installation of source water treatment, the system shall install the treatment within twenty-four (24) months after the completion of subsection (1)(B) of this rule;

(1)(D) The system shall complete follow-up tap water monitoring and source water monitoring within thirty-six (36) months after completion of subsection (1)(B) of this rule;

(1)(E) The department shall review the system's installation and operation of source water treatment and specify maximum permissible source water levels within six (6) months after completion of subsection (1)(D) of this rule;

(1)(F) The system shall operate in compliance with the department-specified maximum permissible lead and copper source water levels and continue source water monitoring.

(2) Any system which exceeds the lead or copper action level shall recommend in writing to the department the installation and operation of one (1) of the source water treatments listed in the following subsections. A system may recommend that no treatment be installed based upon a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps:

(2)(A) The department shall complete an evaluation of the results of all source water samples submitted by the water system to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. If the department determines that treatment is needed, the department shall either require installation and operation of the source water treatment recommended by the system, if any, or require the installation and operation of another source water treatment from the following: ion exchange, reverse osmosis, lime softening, or coagulation/filtration. If the department requests additional information to aid in its review, the water system shall provide the information by the date specified by the department in its request. The department shall notify the system in writing of its determination and set forth the basis for its decision;

(2)(B) Each system shall properly install and operate the source water treatment designated by the department;

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

(2)(D) Each water system shall maintain lead and copper levels below the maximum permissible concentrations designated by the department at each sampling point monitored in accordance with 10 CSR 60-15.090. The system is out of compliance if the level of lead or copper at any of the sampling points are greater than the maximum permissible concentration designated by the department; or

(2)(E) The department, upon its own initiative or in response to a request by a water system or other interested party, may modify its determination of the source water treatment or maximum

permissible lead and copper concentrations for finished water entering the distribution system. 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 the change is necessary to ensure that the system continues to minimize lead and copper concentrations in the 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 CSR 60-15.050 Lead Service Line Replacement Requirements

PURPOSE: This rule sets forth requirements for the removal of lead service lines if lead action levels are exceeded, and corrosion control efforts and source water treatment are unsuccessful in lowering the lead concentration levels in tap samples.

(1) Systems that fail to meet the lead action level in tap samples taken pursuant to 10 CSR 60-15.070(4)(B), after installing corrosion control, source water treatment, or both (whichever sampling occurs later), shall replace lead service lines in accordance with the requirements of this section. If a system is in violation of 10 CSR 60-15.020 or 10 CSR 60-15.040 for failure to install source water or corrosion control treatment, the department may require the system to commence lead service line replacement under this section after the date by which the system was required to conduct monitoring under 10 CSR 60-15.070(4)(B) has passed.

(2) A water system shall replace annually 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 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 upon a materials evaluation, including the evaluation required under 10 CSR 60-15.070(1) and relevant legal authorities (e.g., contracts, local ordinances) regarding the portion owned by the system. The first year of lead service line replacement shall begin on the first day following the end of the monitoring period in which the action level was exceeded under section (1) of this rule. If monitoring is required annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs. If the department has established an alternate monitoring period, then the end of the monitoring period will be the last day of that period.

(3) Any water system resuming a lead service line replacement program after the cessation of its lead service line replacement program as allowed by section (7) of this rule shall update its inventory of lead service lines to include those sites that were previously determined not to require replacement through the sampling provision under section (4) of this rule. The system will then divide the updated number of remaining lead service lines by the number of remaining years in the program to determine the number of lines that must be replaced per year (seven percent (7%) lead service line replacement is based on a fifteen- (15-) year replacement program, so, for example, systems resuming lead service line replacement after previously conducting two (2) years of replacement would divide the updated inventory by thirteen (13)). For those systems that have completed a fifteen- (15-) year lead service line replacement program, the department

will determine a schedule for replacing or retesting lines that were previously tested out under the replacement program when the system re-exceeds the action level.

(4) A system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line, taken pursuant to 10 CSR 60-15.070(2)(C), is less than or equal to 0.015 milligrams per liter (mg/L).

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

(5)(A) At least forty-five (45) days prior to commencing with the partial replacement of a lead service line, the water system shall provide notice to the resident(s) of all buildings served by the line explaining that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers can take to minimize their exposure to lead. The department may allow the water system to provide this 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 10 CSR 60-15.070(2)(C), within seventy-two (72) hours after the completion of the partial replacement of the service line. The system shall collect the sample and report the results of the analysis to the owner and the resident(s) served by the line within three (3) business days of receiving the results. Mailed notices postmarked within three (3) business days of receiving the results shall be considered "on time"; and

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

(6) The department shall require a system to replace lead service lines on a shorter time schedule than that required by this section, taking into account the number of lead service lines in the system, where such a shorter replacement schedule is feasible. The department shall make this determination in writing and notify the system of its finding within six (6) months after the system is triggered into lead service line replacement based on monitoring referenced in section (1) of this rule.

(7) Any system may cease replacing lead service lines whenever first-draw tap samples collected pursuant to 10 CSR 60-15.070(4)(C) meet the lead action level during each of two (2)

consecutive monitoring periods and the system submits the results to the department. If the firstdraw tap samples in any such water system after that exceed the lead action level, the system shall recommence replacing lead service lines, pursuant to section (2) of this rule.

(8) To demonstrate compliance with sections (1)-(5) of this rule, a system shall report to the department the information specified in 10 CSR 60-7.020(5).

10 CSR 60-15.060 Public Education Requirements

PURPOSE: This rule sets forth the content and mode of delivery of written and broadcast materials to be used by water systems when action levels have been exceeded. It also addresses the water system's responsibility when a customer requests supplemental monitoring after an action level has been exceeded.

(1) Content of Written Public Education Materials.

(1)(A) Community water systems and non-transient non-community water systems. Water systems must include the following elements in printed materials (for example, brochures and pamphlets) in the same order as listed below. In addition, language in paragraphs (1)(A)1., 2., and 4. of this rule must be included in the materials, exactly as written, except for the text in brackets in these paragraphs for which the water system must include system-specific information. Any additional information presented by a water system must be consistent with the information below and be in plain language that can be understood by the general public. Water systems must submit all written public education materials to the department prior to delivery. The department may require the system to obtain approval of the content of written public materials prior to delivery.

(1)(A)1. IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. [INSERT NAME OF WATER SYSTEM] found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water.

(1)(A)2. Health effects of lead. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

(1)(A)3. Sources of lead.

(1)(A)3.A. Explain what lead is.

(1)(A)3.B. Explain possible sources of lead in drinking water and how lead enters drinking water. Include information on home/building plumbing materials and service lines that may contain lead.

(1)(A)3.C. Discuss other important sources of lead exposure in addition to drinking water (e.g., paint).

(1)(A)4. Discuss the steps the consumer can take to reduce their exposure to lead in drinking water.

(1)(A)4.A. Encourage running the water to flush out the lead.

(1)(A)4.B. Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.

(1)(A)4.C. Explain that boiling water does not reduce lead levels.

(1)(A)4.D. Discuss other options consumers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water.

(1)(A)4.E. Suggest that parents have their child's blood tested for lead.

(1)(A)5. Explain why there are elevated levels of lead in the system's drinking water (if known) and what the water system is doing to reduce the lead levels in homes/buildings in this area.

(1)(A)6. For more information, call us at [INSERT YOUR NUMBER] [(IF APPLICABLE), or visit our website at [INSERT YOUR WEBSITE HERE]]. For more information on reducing lead exposure around your home/building and the health effects of lead, visit U.S. Environmental Protection Agency's (EPA's) website at http://www.epa.gov/lead or contact your health care provider.

(1)(B) Community Water Systems. In addition to including the elements specified in subsection (1)(A) of this rule, community water systems must--

(1)(B)1. Tell consumers how to get their water tested; and

(1)(B)2. Discuss lead in plumbing components and the difference between low lead and lead free.

(2) Delivery of Public Education Materials.

(2)(A) For public water systems serving a large proportion of non-English speaking consumers, as determined by the department, the public education materials must contain information in the appropriate language(s) regarding the importance of the notice or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

(2)(B) A community water system that exceeds the lead action level on the basis of tap water samples collected in accordance with 10 CSR 60-15.070, and that is not already conducting public education tasks under this section, must conduct the public education tasks under this section within sixty (60) days after the end of the monitoring period in which the exceedance occurred.

(2)(B)1. Deliver printed materials meeting the content requirements of section (1) of this rule to all bill paying customers.

(2)(B)2. Contact customers who are most at risk.

(2)(B)2.A. Contact customers who are most at risk by delivering education materials that meet the content requirements of section (1) of this rule to local public health agencies even if they are not located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially-affected customers or community water system's users. The water system must contact the local public health agencies directly by phone or in person. The local public health agencies may provide a specific list of additional community based organizations serving target populations, which may include organizations outside the service area of the water system. If such lists are provided, systems must deliver educational materials that meet the content requirements of section (1) of this rule to all organizations on the provided lists.

(2)(B)2.B. Contact customers who are most at risk by delivering materials that meet the content requirements of section (1) of this rule to the following organizations that are located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or community water system's users:

(2)(B)2.B.(I) Public and private schools or school boards;

(2)(B)2.B.(II) Women, Infants, and Children (WIC) and Head Start programs;

(2)(B)2.B.(III) Public and private hospitals and medical clinics;

(2)(B)2.B.(IV) Pediatricians;

(2)(B)2.B.(V) Family planning clinics; and

(2)(B)2.B.(VI) Local welfare agencies.

(2)(B)2.C. Make a good faith effort to locate the following organizations within the service area and deliver materials that meet the content requirements of section (1) of this rule to them, along with an informational notice that encourages distribution to all potentially-affected customers or users. The good faith effort to contact at-risk customers may include requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the water system's service area.

(2)(B)2.C.(I) Licensed childcare centers.

(2)(B)2.C.(II) Public and private preschools.

(2)(B)2.C.(III) Obstetricians-gynecologists and midwives.

(2)(B)3. No less often than quarterly, provide information on or in each water bill as long as the system exceeds the action level for lead. The message on the water bill must include the following statement exactly as written except for the text in brackets for which the water system must include system-specific information: [INSERT NAME OF WATER SYSTEM] found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information please call [INSERT NAME OF WATER SYSTEM] [or visit (INSERT YOUR WEBSITE HERE)]. The message or delivery mechanism can be modified in consultation with the department; specifically, the department may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills.

(2)(B)4. Post material meeting the content requirements of section (1) of this rule on the water system's website if the system serves a population greater than one hundred thousand (100,000).

(2)(B)5. Submit a press release to newspapers, television stations, and radio stations.

(2)(B)6. In addition to paragraphs (2)(B)1. through 5. of this rule, systems must implement at least three (3) activities from one (1) or more categories listed below. The educational content and selection of these activities must be determined in consultation with the department.

(2)(B)6.A. Public Service Announcements.

(2)(B)6.B. Paid advertisements.

(2)(B)6.C. Public area information displays.

(2)(B)6.D. Emails to customers.

(2)(B)6.E. Public meetings.

(2)(B)6.F. Household deliveries.

(2)(B)6.G. Targeted individual customer contact.

(2)(B)6.H. Direct material distribution to all multi-family homes and institutions.

(2)(B)6.I. Other methods approved by the department.

(2)(B)7. For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or, if the department has established an alternate monitoring period, the last day of that period.

(2)(C) As long as a community water system exceeds the action level, it must repeat the activities pursuant to subsection (2)(B) of this rule as described in paragraphs (2)(C)1. through 4. of this rule.

(2)(C)1. A community water system shall repeat the tasks contained in paragraphs (2)(B)1, 2., and 6. of this rule every twelve (12) months.

(2)(C)2. A community water system shall repeat tasks contained in paragraph (2)(B)3. of this rule with each billing cycle.

(2)(C)3. A community water system serving a population greater than one hundred thousand (100,000) shall post and retain material on a publicly accessible website pursuant to paragraph (2)(B)4. of this rule.

(2)(C)4. The community water system shall repeat the task in paragraph (2)(B)5. of this rule twice every twelve (12) months on a schedule agreed upon with the department. The department can allow activities in subsection (2)(B) of this rule to extend beyond the sixty- (60-) day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the department in advance of the sixty- (60-) day deadline.

(2)(D) Within sixty (60) days after the end of the monitoring period in which the exceedance occurred (unless it already is repeating public education tasks pursuant to subsection (2)(E) of this rule), a non-transient non-community water system shall deliver the public education materials specified by section (1) of this rule as follows:

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

(2)(D)2. Distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the non-transient non-community water system. The department may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

(2)(D)3. For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or, if the department has established an alternate monitoring period, the last day of that period.

(2)(E) A non-transient non-community water system shall repeat the tasks contained in subsection (2)(D) of this rule at least once during each calendar year in which the system exceeds the lead action level. The department can allow activities in subsection (2)(D) of this rule to extend beyond the sixty- (60-) day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the department in advance of the sixty- (60-) day deadline.

(2)(F) A water system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six- (6-) month monitoring period conducted pursuant to 10 CSR 60-15.070. Such a system shall recommence public education in accordance with this rule if it subsequently exceeds the lead action level during any monitoring period.

(2)(G) A community water system may apply to the department, in writing (unless the department has waived the requirement for prior department approval), to use only the text specified in subsection (1)(A) of this rule instead of the text in subsections (1)(A) and (1)(B) of this rule and to perform the tasks listed in subsections (2)(D) and (2)(E) of this rule instead of the tasks in subsections (2)(B) and (2)(C) of this rule if--

(2)(G)1. The system is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point-of-use treatment devices; and

(2)(G)2. The system provides water as part of the cost of services provided and does not separately charge for water consumption.

(2)(H) A community water system serving three thousand three hundred (3,300) or fewer people may limit certain aspects of their public education programs as follows:

(2)(H)1. With respect to the requirements of paragraph (2)(B)6. of this rule, a system serving three thousand three hundred (3,300) or fewer people must implement at least one (1) of the activities listed in that paragraph;

(2)(H)2. With respect to the requirements of paragraph (2)(B)2. of this rule, a system serving three thousand three hundred (3,300) or fewer people may limit the distribution of the public education materials required under that paragraph to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children; and

(2)(H)3. With respect to the requirements of paragraph (2)(B)5. of this rule, the department may waive this requirement for systems serving three thousand three hundred (3,300) or fewer people as long as the system distributes notices to every household served by the system.

(3) Supplemental Monitoring and Notification of Results. A water system that fails to meet the lead action level on the basis of tap samples collected in accordance with 10 CSR 60-15.070 shall offer to sample the tap water of any customer who requests it. The system is not required to pay for collecting or analyzing the sample, nor is the system required to collect and analyze the sample itself.

(4) Notification of Results.

(4)(A) Reporting Requirement. All water systems must provide a notice of the individual tap results from lead tap water monitoring carried out under the requirements of 10 CSR 60-15.070 to the persons served by the water system at the specific sampling site from which the sample was taken (for example, the occupants of the residence where the tap was tested).

(4)(B) Timing of Notification. A water system must provide the consumer notice as soon as practical, but no later than thirty (30) days after the system learns of the tap monitoring results.

(4)(C) Content. The consumer notice must include the results of lead tap water monitoring for the tap that was tested, an explanation of the health effects of lead, steps consumers can take to reduce exposure to lead in drinking water, and contact information for the water utility. The notice must also provide the maximum contaminant level goal and the action level for lead and the definitions for these two (2) terms from 10 CSR 60-2.015(2).

(4)(D) Delivery. The consumer notice must be provided to persons served at the tap that was tested, either by mail or by another method approved by the department. For example, upon approval by the department, a non-transient non-community water system could post the results on a bulletin board in the facility to allow users to review the information. The system must provide the notice to customers at sample taps tested, including consumers who do not receive water bills.

10 CSR 60-15.070 Monitoring Requirements For Lead And Copper In Tap Water

PURPOSE: This rule establishes the monitoring requirements which are applicable to lead and copper in drinking water.

(1) Sample Site Location. A water system shall use the information on lead, copper and galvanized steel that it is required to collect under this section when conducting a materials evaluation. When an evaluation of the information collected pursuant to this section is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in subsection (1)(A) of this rule, the water system shall review the sources of information listed in this rule in order to identify a sufficient number of sampling sites. In addition, the system shall seek to collect that information where possible in the course of its normal operations (for example, 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) which indicate the plumbing materials that are installed within publiclyand 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.

(1)(A) By the applicable date for commencement of monitoring under subsection (4)(A) of this rule, each water system shall complete a materials evaluation of its distribution system in order to identify a pool of targeted sampling sites that meets the requirements of this section and which is sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in section (3) of this rule. All sites from which first-draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites may not include

faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.

(1)(B) Community water supply systems shall identify whether the following construction materials are present in their distribution system:

(1)(B)1. Lead from piping, solder caulking, interior lining of distribution mains, alloys and home plumbing;

(1)(B)2. Copper from piping and alloys, service lines and home plumbing;

(1)(B)3. Ferrous piping materials, such as cast iron and steel;

(1)(B)4. Asbestos cement pipe;

(1)(B)5. Vinyl-lined asbestos cement pipe; and

(1)(B)6. Coal tar-lined pipes and tanks.

(1)(C) 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, or a combination of these. When multiple-family residences comprise at least twenty percent (20%) of the structures served by a water system, the system may include these types of structures in its sampling pool.

(1)(D) Any community water system with insufficient tier 1 sampling sites shall complete its sampling pool with tier 2 sampling sites, consisting of buildings, including multiple-family residences, that contain copper pipes with lead solder installed after 1982, or contain lead pipes, or are served by a lead service line, or a combination of these.

(1)(E) Any community water system with insufficient tier 1 and tier 2 sampling sites shall complete its sampling pool with tier 3 sampling sites, consisting of single-family structures that contain copper pipes with lead solder installed before 1983. A community water system with insufficient tier 1, tier 2, and tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system. 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.

(1)(F) The sampling sites selected for a nontransient noncommunity 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, or a combination of these.

(1)(G) A nontransient noncommunity water system with insufficient tier 1 sites that meet the targering criteria in subsection (1)(F) of this rule shall complete its sampling pool with sampling sites that contain copper piper with lead solder installed before 1983. If additional sites are

needed to complete the sampling pool, the nontransient noncommunity water system shall use representative sites throughout the distribution system. 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.

(1)(H) Any water system whose distribution system contains 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 these lines.

(2) Sample Collection Methods.

(2)(A) All tap samples for lead and copper collected in accordance with this rule, with the exception of lead service line samples collected under 10 CSR 60-15.050(3) and samples collected under subsection (2)(E) of this rule, shall be first-draw samples.

(2)(B) Each first-draw tap sample for lead and copper shall be one (1) liter in volume and have stood motionless in the plumbing system of each sampling site for at least six (6) hours. Firstdraw samples from residential housing shall be collected from the cold-water kitchen tap or bathroom sink tap. First-draw samples from a nonresidential building shall be one (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 subsection (2)(E) of this rule 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 procedures specified in this section. To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to fourteen (14) days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved United States Environmental Protection Agency (U.S. EPA) method before the sample can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

(2)(C) 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:

(2)(C)1. At the tap after flushing the volume of water between the tap and the lead service line. The volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line;

(2)(C)2. Tapping directly into the lead service line; or
(2)(C)3. If the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature which would be indicative of water that has been standing in the lead service line.

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

(2)(E) A non-transient non-community water system, or a community water system that meets the criteria of 10 CSR 60-15.060(2)(E), that does not have enough taps that can supply first-draw samples as defined in 10 CSR 60-2.015 may, with department approval, apply substitute non-first-draw samples. 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.

(3) Number of Samples. Water systems shall collect at least one (1) sample during each monitoring period specified in subsection (4)(D) of this rule from the number of sites listed in the second column ("Standard Monitoring") of Table 1. A system conducting reduced monitoring under subsection (4)(D) of this rule shall collect at least one (1) sample from the number of sites specified in the third column ("Reduced Monitoring") of Table 1 during each monitoring period specified in subsection (4)(D) of this rule. Such reduced monitoring sites shall be representative of the sites required for standard monitoring. A public water system that has fewer than five (5) drinking water taps that can be used for human consumption meeting the sample site criteria of section (1) of this rule to reach the required number of sample sites listed in section (3) of this rule must collect at least one (1) sample from each tap and then must collect additional samples from those taps on different days during the monitoring period to meet the required number of sites. Alternatively the department may allow these public water systems to collect a number of samples less than the number of sites specified in section (3) of this rule, provided that onehundred percent (100%) of all taps that can be used for human consumption are sampled. The department must approve this reduction of the minimum number of samples in writing based on a request from the system or onsite verification by the department. The department may specify sampling locations when a system is conducting reduced monitoring.

System Size (# People Served)	Number of Sites (Standard Monitoring)	Number of Sites (Reduced Monitoring)
. 100, 000	100	50
>100,000	TOO	50
10,001-100,000	60	30
3,301-10,000	40	20
501- 3,300	20	10
101-500	10	5
≤100	5	5

Table 1.

(4) Timing of Monitoring.

(4)(A) Initial Tap Sampling. The first six (6)-month monitoring period for small (serving less than or equal to three thousand three hundred (3,300) persons), medium-size (serving three thousand three hundred one to fifty thousand (3,301-50,000) persons) and large (serving more than fifty thousand (>50,000) persons) systems shall begin on the following dates:

System Size	First Six (6)-Month Monitoring Period Begins On
(# People Served)	
>50,000 3,301-50,000 ≤3,300	January 1, 1992 July 1, 1992 July 1, 1993

(4)(A)1. All large systems shall monitor during two (2) consecutive six (6)-month periods.

(4)(A)2. All small- and medium-size systems shall monitor during each six (6)-month monitoring period until the system--

(4)(A)2.A. Exceeds the lead or copper action level and is therefore required to implement the corrosion control treatment requirements under <u>10 CSR 60-15.020</u>, in which case the system shall continue monitoring in accordance with subsection (4)(B) of this rule; or

(4)(A)2.B. 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 subsection (4)(D) of this rule.

(4)(B) Monitoring After Installation of Corrosion Control and Source Water Treatment.

(4)(B)1. Any large system which installs optimal corrosion control treatment pursuant to $\frac{10 \text{ CSR}}{60-15.020(1)(A)4.}$ shall monitor during two (2) consecutive six (6)-month monitoring periods by the date specified in $\frac{10 \text{ CSR } 60-15.020(1)(A)5.}{10 \text{ CSR } 60-15.020(1)(A)5.}$

(4)(B)2. Any small- or medium-size system which installs optimal corrosion control treatment pursuant to 10 CSR 60-15.020(2)(A)5. shall monitor during two (2) consecutive six (6)-month monitoring periods by the date specified in 10 CSR 60-15.020(2)(A)6.

(4)(B)3. Any system which installs source water treatment pursuant to 10 CSR 60-15.040(1)(C) shall monitor during two (2) consecutive six (6)-month monitoring periods by the date specified in 10 CSR 60-15.040(1)(D).

(4)(C) After the department specifies the values for water quality control parameters under $\underline{10}$ <u>CSR 60-15.030(6)</u>, 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 10 CSR 60-15.030(6).

(4)(D) Reduced Monitoring.

(4)(D)1. 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 section (3) of this rule and reduce the frequency of sampling to once per year. A small- or medium-size water system collecting fewer than five (5) samples, as specified in section (3) of this rule, that meets the lead and copper action levels during each of two (2) consecutive six- (6-) month monitoring periods may reduce the frequency of sampling to once per year. In no case can the system reduce the number of samples required below the minimum of one (1) sample per available tap. This sampling shall begin during the calendar year immediately following the end of the second consecutive six- (6-) month monitoring period.

(4)(D)2. Any water system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified under 10 CSR 60-15.030(7) 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 section (3) of this rule if it receives written approval from the department. This sampling shall begin during the calendar year immediately following the end of the second consecutive six- (6-) month monitoring period. The department shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with 10 CSR 60-7.020 and shall notify the system in writing when it determines the system is eligible to commence reduced monitoring pursuant to this section. 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.

(4)(D)3. A small- or medium-size water system that meets the lead and copper action levels during three (3) consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three (3) years. Any water system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the department under 10 CSR 60-15.030(6) 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. Samples collected once every three (3) years shall be collected no later than every third calendar year. The department shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with 10 CSR 60-7.020 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.

(4)(D)4. 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 section (1) of this rule. 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.

(4)(D)4.A. The department, at 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 no longer than four (4) consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. For a non-transient non-community water system that does not operate during the months of June through September, and for which the period of normal operation where the highest levels of lead are most likely to occur is not known, the department shall designate a period that represents a time of normal operation for the system. This sampling shall begin during the period approved or designated by the department in the calendar year immediately following the end of the second consecutive six-(6-) month monitoring period for systems initiating annual monitoring and during the three- (3-) year period following the end of the third consecutive calendar year of annual monitoring for systems initiating triennial monitoring.

(4)(D)4.B. 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, must 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 triennially, that have been collecting samples during the months of June through September and receive department approval to alter the sampling collection period, must 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 must be collected annually or triennially, as required by this section. Small systems with waivers, granted pursuant to section (6) of this rule, that have been collecting samples during the months of June through September and receive department approval to alter their sample collection period must collect their next round of sampling. Subsequent rounds of sampling must be collected annually or triennially, as required by this section. Small systems with waivers, granted pursuant to section (6) of this rule, that have been collecting samples during the months of June through September and receive department approval to alter their sample collection period must collect their next round of samples before the end of the nine- (9-) year period.

(4)(D)5. Any water system that demonstrates for two (2) consecutive six- (6-) month monitoring periods that the tap water lead level computed under 10 CSR 60-15.010(3)(C) is less than or equal to 0.005 mg/L and the tap water copper level computed under 10 CSR 60-15.010(3)(C) is less than or equal to 0.65 mg/L may reduce the number of samples in accordance with section (3) of this rule and reduce the frequency of sampling to once every three (3) calendar years.

(4)(D)6. 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 subsection (4)(C) of this rule and collect the number of samples specified for standard monitoring under section (3) of this rule. Such a system shall also conduct water quality parameter monitoring in accordance with 10 CSR 60-15.080(2), (3), or (4) (as appropriate) during the monitoring period in which it exceeded the action level. Any such system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in section (3) of this rule after it has completed two (2) subsequent consecutive six- (6-) month rounds of monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (4)(D)2. or (4)(D)5. of this rule.

(4)(D)6.A. Any water system subject to the reduced monitoring frequency that fails to meet the lead action level during any four- (4-) month monitoring period or that fails to operate at or

above the minimum value or within the range of values for the water quality parameters specified by the department under 10 CSR 60-15.080(6) for more than nine (9) days in any six-(6-) month period specified in 10 CSR 60-15.080(4) shall conduct tap water sampling for lead and copper at the frequency specified in subsection (4)(C) of this rule, collect the number of samples specified for standard monitoring under section (3) of this rule, and resume reduced monitoring for water quality parameters within the distribution system in accordance with 10 CSR 60-15.080(4). This standard tap water sampling shall begin no later than the six- (6-) month period beginning January 1 of the calendar year following the lead action level exceedance or water quality parameter excursion. 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:

(4)(D)6.A.(I) The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in section (3) of this rule after it has completed two (2) subsequent six- (6-) month rounds of monitoring that meet the criteria of paragraph (4)(D)2. of this rule and the system has received written approval from the department that it is appropriate to resume reduced monitoring on an annual frequency. This sampling shall begin during the calendar year immediately following the end of the second consecutive six- (6-) month monitoring period;

(4)(D)6.A.(II) The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (4)(D)3. or (4)(D)5. of this rule and the system has received written approval from the department that it is appropriate to resume triennial monitoring; and

(4)(D)6.A.(III) The system may reduce the number of water quality parameter tap water samples required in accordance with 10 CSR 60-15.080(5)(A) and the frequency with which it collects such samples in accordance with 10 CSR 60-15.080(5)(B). Such a system may not resume triennial monitoring for water quality parameters at the tap until it demonstrates, in accordance with the requirements of 10 CSR 60-15.080(5)(B), that it has requalified for triennial monitoring.

(4)(D)7. 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 10 CSR 60-15.030(6) for more than nine (9) days in any six-(6-) month period specified in 10 CSR 60-15.080(4) shall conduct tap water sampling for lead and copper at the frequency specified in subsection (4)(C) of this rule, collect the number of samples specified for standard monitoring under section (3) of this rule, and resume monitoring for water quality parameters within the distribution system in accordance with 10 CSR 60-15.030(4). Any water system subject to a reduced monitoring frequency under subsection (4)(D) of this rule shall notify the department in writing in accordance with 10 CSR 60-7.020(3)(C) of any upcoming long-term change in treatment or addition of a new source as described in that rule. The department must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system. Such a system may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system.

(4)(D)7.A. The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in section (3) of this rule after it has completed two (2) subsequent six- (6-) month rounds of monitoring that meet the criteria of paragraph (4)(D)2. of this rule and the system has received written approval from the department that it is appropriate to resume reduced monitoring on an annual frequency;

(4)(D)7.B. The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (4)(D)3. or (4)(D)5. of this rule and the system has received written approval from the department that it is appropriate to resume triennial monitoring; and

(4)(D)7.C. The system may reduce the number of water quality parameter tap water samples required in accordance with 10 CSR 60-15.080(5)(A) and the frequency with which it collects such samples in accordance with 10 CSR 60-15.080(5)(B). Such a system may not resume triennial monitoring for water quality parameters at the tap until it demonstrates, in accordance with the requirements of 10 CSR 60-15.080(5)(B)2., that it has requalified for triennial monitoring.

(4)(D)8. Any water system subject to a reduced monitoring frequency under subsection (4)(D) of this rule that either adds a new source of water or changes any water treatment shall inform the department in writing in accordance with 10 CSR 60-7.020(1)(C). The department may require the system to resume sampling in accordance with subsection (4)(C) of this rule and collect the number of samples specified for standard monitoring in Table 1 of section (3) of this rule or take other appropriate steps such as increased water quality parameter monitoring or reevaluation of its corrosion control treatment given the potentially different water quality considerations.

(5) The results of any monitoring conducted, in addition to the minimum requirements of this section, shall be considered by the system and the department in making any determinations (that is, calculating the ninetieth percentile lead or copper level) under this rule.

(6) Invalidation of Lead or Copper Tap Water Samples. A sample invalidated under this section does not count toward determining lead or copper ninetieth percentile levels under <u>10 CSR 60-15.010(3)(C)</u> or toward meeting the minimum monitoring requirements of Table 1 in section (3) of this rule.

(6)(A) The department may invalidate a lead or copper tap water sample if one (1) of the following conditions is met:

(6)(A)1. The laboratory establishes that improper sample analysis caused erroneous results;

(6)(A)2. The department determines that the sample was taken from a site that did not meet the site selection criteria of this rule;

(6)(A)3. The sample container was damaged in transit; or

(6)(A)4. There is substantial reason to believe that the sample was subject to tampering.

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

(6)(C) To invalidate a sample under subsection (6)(A) of this rule, the decision and the rationale for the decision must be documented in writing. The department shall not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

(6)(D) The water system must collect replacement samples for any samples invalidated under this section if, after the invalidation of one (1) or more samples, the system has too few samples to meet the minimum requirements of section (3) of this rule. Any such replacement samples must 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 during the monitoring period.

(7) Monitoring Waivers for Small Systems. Any small system that meets the criteria of this section may apply to the department to reduce the frequency of monitoring for lead and copper under this section to once every nine (9) years (that is, a "full waiver") if it meets all of the materials criteria specified in subsection (7)(A) of this rule and all of the monitoring criteria specified in subsection (7)(B) of this rule. Any small system that meets the criteria in subsection (7)(A) and (B) of this rule only for lead, or only for copper, may apply to the department for a waiver to reduce the frequency of tap water monitoring to once every nine (9) years for that contaminant only (that is, a "partial waiver").

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

(7)(A)1. Lead. To qualify for a full waiver, or a waiver of the tap water monitoring requirements for lead (that is, a "lead waiver"), the water system must provide certification and supporting documentation to the department that the system is free of all lead-containing materials, as follows:

(7)(A)1.A. It contains no plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers; and

(7)(A)1.B. It is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless such fittings and fixtures meet the specifications of any standard established pursuant to 42 U.S.C. 300g-6(e) (SDWA section 1417(e)).

(7)(A)2. Copper. To qualify for a full waiver, or a waiver of the tap water monitoring requirements for copper (that is, a "copper waiver"), the water system must provide certification and supporting documentation to the department that the system contains no copper pipes or copper service lines.

(7)(B) Monitoring Criteria for Waiver Issuance. The system must have completed at least one (1) six (6)-month round of standard tap water monitoring for lead and copper at sites approved by the department and from the number of sites required by Table 1 of section (3) of this rule and demonstrate that the ninetieth percentile levels for any and all rounds of monitoring conducted since the system became free of all lead-containing and/or copper-containing materials, as appropriate, meet the following criteria.

(7)(B)1. Lead levels. To qualify for a full waiver, or a lead waiver, the system must demonstrate that the ninetieth percentile lead level does not exceed 0.005 mg/l.

(7)(B)2. Copper levels. To qualify for a full waiver, or a copper waiver, the system must demonstrate that the ninetieth percentile copper level does not exceed 0.65 mg/l.

(7)(C) Department Approval of Waiver Application. The department shall notify the system of its waiver determination, in writing, setting forth the basis of its decision and any condition of the waiver. As a condition of the waiver, the department may require the system to perform specific activities (e.g., limited monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver) to avoid the risk of lead or copper concentration of concern in tap water. The small system must continue monitoring for lead and copper at the tap as required by subsections (4)(A)-(D) of this rule, as appropriate, until it receives written notification from the department that the waiver has been approved.

(7)(D) Monitoring Frequency for Systems with Waivers.

(7)(D)1. A system with a full waiver must conduct tap water monitoring for lead and copper in accordance with paragraph (4)(D)4. of this rule at the reduced number of sampling sites identified in Table 1 of section (3) of this rule at least once every nine (9) years and provide the materials certification specified in subsection (7)(A) of this rule for both lead and copper to the department along with the monitoring results. Samples collected every nine (9) years shall be collected no later than every ninth calendar year.

(7)(D)2. A system with a partial waiver must conduct tap water monitoring for the waived contaminant in accordance with paragraph (4)(D)4. of this rule at the reduced number of sampling sites specified in Table 1 of section (3) of this rule at least once every nine (9) years and provide the materials certification specified in subsection (7)(A) of this rule pertaining to the waived contaminant along with the monitoring results. Such a system also must continue to monitor for the non-waived contaminant in accordance with requirements of subsections (4)(A) through (4)(D) of this rule, as appropriate.

(7)(D)3. If a system with a full or partial waiver adds a new source of water or changes any water treatment, the system must notify the department in writing in accordance with 10 CSR 60-

7.020(1)(C). Any water system with a full or partial waiver shall notify the department in writing in accordance with 10 CSR 60-7.020(1)(C) of any upcoming long-term change in treatment or addition of a new source, as described in that rule. The department must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system. The department may require the system to add or modify waiver conditions (e.g., require recertification that the system is free of lead-containing and/or copper-containing materials, require additional round(s) of monitoring), if it deems such modifications are necessary to address treatment or source water changes at the system.

(7)(D)4. If a system with a full or partial waiver becomes aware that it is no longer free of leadcontaining or copper-containing materials (for example, as a result of new construction or repairs), the system shall notify the department in writing no later than sixty (60) days after becoming aware of such a change.

(7)(E) Continued Eligibility. If the system continues to satisfy the requirements of subsection (7)(D) of this rule, the waiver will be renewed automatically, unless any of the conditions listed in paragraph (7)(E)1.-3. of this rule occurs. A system whose waiver has been revoked may reapply for a waiver at such time as it again meets the appropriate materials and monitoring criteria of subsections (7)(A) and (7)(B) of this rule.

(7)(E)1. A system with a full waiver or a lead waiver no longer satisfies the materials criteria of paragraph (7)(A)1. of this rule or has a ninetieth percentile lead level greater than 0.005 mg/l.

(7)(E)2. A system with a full waiver or a copper waiver no longer satisfies the materials criteria of paragraph (7)(A)2. of this rule or has a ninetieth percentile copper level greater than 0.65 mg/l.

(7)(E)3. The department notifies the system, in writing, that the waiver has been revoked, setting forth the basis of its decision.

(7)(F) Requirements Following Waiver Revocation. A system whose full or partial waiver has been revoked by the department is subject to the corrosion control treatment and lead and copper tap water monitoring requirements, as follows:

(7)(F)1. If the system exceeds the lead and/or copper action level, the system must implement corrosion control treatment in accordance with the deadlines specified in 10 CSR 60-15.010(5), and any other applicable requirements of this subpart.

(7)(F)2. If the system meets both the lead and the copper action level, the system must monitor for lead and copper at the tap no less frequently than once every three (3) years using the reduced number of sample sites specified in Table 1 of section (3) of this rule.

(7)(G) Pre-existing Waivers. Small system waivers approved by the department in writing prior to April 11, 2000 shall remain in effect under the following conditions:

(7)(G)1. If the system has demonstrated that it is both free of lead-containing and coppercontaining materials, as required by subsection (7)(A) of this rule and that its ninetieth percentile lead levels and ninetieth percentile copper levels meet the criteria of subsection (7)(B) of this rule, the waiver remains in effect so long as the system continues to meet the waiver eligibility criteria of subsection (7)(E) of this rule. The first round of tap water monitoring conducted pursuant to subsection (7)(D) of this rule shall be completed no later than nine (9) years after the last time the system has monitored for lead and copper at the tap.

(7)(G)2. *Reserved*.

10 CSR 60-15.080 Monitoring Requirements For Water Quality Parameters

PURPOSE: This rule sets forth the procedures and requirements for monitoring drinking water to determine how corrosive the water is to the distribution system.

(1) General Requirements. All large (serving more than fifty thousand (>50,000) persons) water systems and all small-(serving less than or equal to three thousand three hundred (\leq 3,300) persons) and medium-size (serving three thousand three hundred one to fifty thousand (3,301-50,000) persons) systems that exceed the lead or copper action level shall monitor water quality parameters in addition to lead and copper in accordance with this rule. The requirements of this rule are summarized in the table at the end of this rule.

(1)(A) Sample Collection Methods.

(1)(A)1. Tap samples shall be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the system and seasonal variability. Tap sampling under this rule is not required to be conducted at taps targeted for lead and copper sampling under 10 CSR 60-15.070(1). (Note: Systems may find it convenient to conduct tap sampling for water quality parameters at sites used for coliform sampling under <u>10 CSR 60-4.020(1)(A)</u>.)

(1)(A)2. 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 must sample at an entry point to the distribution system during periods of normal operating conditions (that is, when water is representative of all sources being used).

(1)(B) Number of Samples.

(1)(B)1. Systems shall collect two (2) tap samples for applicable water quality parameters during each monitoring period specified under sections (2)-(5) of this rule from the following number of sites:

Sites for Water System Size Quality Parameters (# People Served) (Number)

>100,000	25
10,001-100,000	10
3,301-10,000	3
501-3,300	2
101-500	1
≤100	1

(1)(B)2. Except as provided in subsection (3)(C) of this rule, 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 section (2) of this rule. During each monitoring period specified in sections (3)-(5) of this rule, systems shall collect one (1) sample for each applicable water quality parameter at each entry point to the distribution system.

(2) Initial Sampling. All large (serving more than fifty thousand (>50,000) persons) water systems shall measure the applicable water quality parameters as specified in this rule at taps and at each entry point to the distribution system during each six (6)-month monitoring period specified in <u>10 CSR 60-15.070(4)(A)</u>. All small (serving less than or equal to three thousand three hundred (\leq 3,300) persons) and medium-size (serving three thousand three hundred one to fifty thousand (3,301-50,000) persons) systems shall measure the applicable water quality parameters at the locations specified as follows during each six (6)-month monitoring period specified in <u>10 CSR 60-15.070(4)(A)</u>. during which the system exceeds the lead or copper action level:

(2)(A) At taps--

(**2**)(**A**)1. pH;

(2)(A)2. Alkalinity;

(2)(A)3. Orthophosphate, when an inhibitor containing a phosphate compound is used;

(2)(A)4. Silica, when an inhibitor containing a silicate compound is used;

(2)(A)5. Calcium;

(2)(A)6. Conductivity; and

(2)(A)7. Water temperature; and

(2)(B) At each entry point to the distribution system, all of the applicable parameters listed in subsection (2)(A) of this rule.

(3) Monitoring After Installation of Corrosion Control. Any large system which installs optimal corrosion control treatment pursuant to 10 CSR 60-15.020(1)(A)4. shall measure the water quality parameters at the locations and frequencies specified in this section during each six (6)-month monitoring period specified in 10 CSR 60-15.070(4)(B)1. Any small- or medium-size system which installs optimal corrosion control treatment shall conduct monitoring during each

six (6)-month monitoring period as specified in 10 CSR 60-15.070(4)(B)2. in which the system exceeds the lead or copper action level.

(3)(A) At taps, two (2) samples for--

(**3**)(**A**)1. pH;

(3)(A)2. Alkalinity;

(3)(A)3. Orthophosphate, when an inhibitor containing a phosphate compound is used;

(3)(A)4. Silica, when an inhibitor containing a silicate compound is used; and

(3)(A)5. Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(3)(B) Except as provided in subsection (3)(C) of this rule, at each entry point to the distribution system, at least one (1) sample no less frequently than every two (2) weeks (bi-weekly)--

(**3**)(**B**)1. For pH;

(3)(B)2. When alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity and the alkalinity concentration; and

(3)(B)3. When a corrosion inhibitor is used as part of optimal corrosion control, a reading of the dosage rate of the inhibitor used and the concentration of orthophosphate or silica (whichever is applicable).

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

(4) Monitoring After 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 <u>10 CSR 60-15.030(7)</u>, all large (serving more than fifty thousand (>50,000) persons) systems shall measure the applicable water quality parameters in accordance with section (<u>3</u>) of this rule and determine compliance with the requirements of <u>10 CSR 60-15.030(8</u>) every six (6) months with the first six- (6-) month period to begin on either January 1 or July 1, whichever comes first, after the department specifies the optimal values under <u>10 CSR 60-15.030(7)</u>. Any small- (serving less than three thousand three hundred (<3,300) persons) or medium-size (serving three thousand three hundred one to fifty

thousand (3,301-50,000) persons) system shall conduct such monitoring during each six- (6-) month period specified in <u>10 CSR 60-15.070(4)(C)</u> in which the system exceeds the lead or copper action level. For any such small- and medium-size system that is subject to a reduced monitoring frequency pursuant to <u>10 CSR 60-15.070(4)(D)</u> at the time of the action level exceedance, the start of the applicable six- (6-) month period under this section shall coincide with the start of the applicable monitoring period under <u>10 CSR 60-15.070(4)(D)</u>. Compliance with department-designated optimal water quality parameter values shall be determined as specified under 10 CSR 60-15.030(8).

(5) Reduced Monitoring.

(5)(A) 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 section (4) of this rule shall continue monitoring at the entry point(s) to the distribution system as specified in subsection (3)(B) of this rule. That 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	Sites for Water Quality Parameters
(# People Served)	(Reduced Number)
>100,000 10 10,001-100,000 3,301-10,000 501-3,300	7 3 2
≤100	1

(5)(B) Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under 10 CSR 60-15.030(6) during three (3) consecutive years of annual monitoring under this subsection may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subsection (5)(A) of this rule from every six (6) months to annually. This sampling begins during the calendar year immediately following the end of the monitoring period in which the third consecutive year of six- (6-) month monitoring occurs. Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under 10 CSR 60-15.030(6) during three (3) consecutive years of annual monitoring under this rule may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in section (6) of this rule from annually to every three (3) years. This sampling begins no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs. A water system may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in subsection (5)(A) of this rule to every three (3) years if it demonstrates during two (2) consecutive monitoring periods that its tap water lead level at the ninetieth percentile is less than or equal to the PQL for lead specified in 10 CSR 60-5.010(5)(H), that its tap water copper level at the ninetieth percentile is

less than or equal to 0.65 mg/L for copper, 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 10 CSR 60-15.030(7). Monitoring conducted every three (3) years shall be done no later than every third calendar year.

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

(5)(D) 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 in 10 CSR 60-15.030(7) for more than nine (9) days in any six (6)-month period specified in 10 CSR 60-15.030(8) shall resume distribution system tap water sampling in accordance with the number and frequency requirements in section (4) of this rule. Such a system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in subsection (5)(A) of this rule after it has completed two (2) subsequent consecutive six (6)-month rounds of monitoring that meet the criteria of that paragraph and/or may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (5)(B)1. or (5)(B)2. of this rule.

(6) Additional Monitoring by Systems. The results of any monitoring conducted in addition to the minimum requirements of this rule shall be considered by the system and the department in making any determinations (that is, determining concentrations of water quality parameters) under this rule or <u>10 CSR 60-15.030</u>.

Monitoring Period	Parameters2	Location	Frequency
Initial monitoring	pH, alkalinity, orthophosphate or silica ³ , calcium, conductivity, temperature	Taps and at entry point(s) to the distribution system	Every six (6) months
After installation of corrosion control	pH, alkalinity, orthophosphate or silica3, calcium4	Taps	Every six (6) months
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual5	Entry point(s) to distribution system	No less frequently than every two (2) weeks

Summary of Monitoring Requirements for Water Quality Parameters1

After department specifies parameter values for optimal corrosion control	pH, alkalinity, orthophosphate or silica 3 , calcium <mark>4</mark>	Taps	Every six (6) months
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual5	Entry point(s) to the distribution system	No less frequenly than every two (2) weeks
Reduced monitoring	pH, alkalinity, orthophosphate or silica 3 , calcium 4	Taps	Every six (6) months, annually7 or every three (3) years8, at a reduced number of sites
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual5	Entry point(s) to distribution system	No less frequently than every two (2) weeks

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

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

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

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

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

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

7 Water systems may reduce frequency of monitoring for water quality parameters at the tap from every six (6) months to annually if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during three (3) consecutive years of monitoring.

8 Water systems may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every three (3) years if they have maintained the range of values from water quality parameters reflecting optimal corrosion control during three (3) consecutive years of annual monitoring. Water systems may accelerate to triennial monitoring for quality parameters at the tap if they have maintained ninetieth percentile lead levels less than or equal to 0.005 mg/l, ninetieth percentile copper levels less than or equal to 0.65 mg/l, and the range of water quality parameters designated by the department under 10 CSR 60-15.030(7) as representing optimal corrosion control during two (2) consecutive six (6)-month monitoring periods.

10 CSR 60-15.090 Monitoring Requirements For Lead And Copper In Source Water

PURPOSE: This rule establishes monitoring requirements for lead and copper in source waters.

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

(1)(A) A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with 10 CSR 60-15.070 shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

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

(1)(A)2. Surface water systems shall take a minimum of one (1) sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point). The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant (Note: For the purposes of this requirement, surface water systems include systems with a combination of surface and ground sources);

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

(1)(A)4. The department may reduce the total number of samples which must be analyzed by allowing the use of compositing. Compositing of samples must be done by certified laboratory personnel. Composite samples from a maximum of five (5) samples are allowed, provided that if the lead concentration in the composite sample is greater than or equal to 0.001 mg/L or the copper concentration is greater than or equal to 0.160 mg/L, then either:

(1)(A)4.A. A follow-up sample shall be taken and analyzed within fourteen (14) days at each sampling point included in the composite; or

(1)(A)4.B. If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the system may use these instead of resampling.

(1)(B) Where the results of sampling indicate an exceedance of maximum permissible source water levels established under 10 CSR 60-5.040(2)(C), 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 the 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 maximum permissible levels. Any sample value below the detection limit shall be considered to be zero (0). Any value above the detection limit but below the practical quantification level (PQL) shall be as the measured value or be considered one-half (1/2) PQL.

(2) Monitoring Frequency After System Exceeds Tap Water Action Level. Any system which exceeds the lead or copper action level at the tap shall collect one (1) source water sample from each entry point to the distribution system no later than six (6) months after the end of the monitoring period during which the lead or copper action level was exceeded. For monitoring periods that are annual or less frequent, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the department has established an alternate monitoring period, the last day of that period.

(3) Monitoring Frequency After Installation of Source Water Treatment. Any system which installs source water treatment pursuant to 10 CSR 60-15.040 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 10 CSR 60-15.040(1)(D).

(4) Monitoring Frequency After the Department Specifies Maximum Permissible Source Water Levels or Determines that Source Water Treatment is not Needed.

(4)(A) A system shall monitor at the following specified frequency in cases where the department specifies maximum permissible source water levels under 10 CSR 60-15.040(2)(C) or determines that the system is not required to install source water treatment under 10 CSR 60-15.040(2)(C).

(4)(A)1. A water system using only ground water shall collect samples once during the three- (3-) year compliance period in effect when the applicable department determination under subsection (4)(A) of this rule is made. Those systems shall collect samples once during each

subsequent compliance period. Triennial samples shall be collected every third calendar year; and

(4)(A)2. A water system using surface water (or a combination of surface and ground water) shall collect samples once during each calendar year, the first annual monitoring period to begin during the year in which the applicable department determination is made under subsection (4)(A) of this rule.

(4)(B) A system is not required to conduct source water sampling for lead, copper, or both, if the system meets the action level for the specific contaminant in tap water samples during the entire source water sampling period applicable to the system under subsection (4)(A) of this rule.

(5) Reduced Monitoring Frequency.

(5)(A) A water system using only ground water may reduce the monitoring frequency for lead and copper in source water to once during each nine- (9-) year compliance cycle (as that term is defined in <u>10 CSR 60-2.015</u>) provided that the samples are collected no later than every ninth calendar year and if the system meets any one (1) of the following criteria:

(5)(A)1. The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified in 10 CSR 60-15.040(2)(C) during at least three (3) consecutive compliance periods under subsection (4)(A) of this rule; or

(5)(A)2. The department has determined that source water treatment is not needed and the system demonstrates that, during at least three (3) consecutive compliance periods in which sampling was conducted under subsection (4)(A) of this rule, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(5)(B) A water system using surface water (or a combination of surface and ground waters) may reduce the monitoring frequency in paragraph (4)(A)2. of this rule to once during each nine- (9-) year compliance cycle (as that term is defined in 10 CSR 60-2.015) provided that the samples are collected no later than every ninth calendar year and if the system meets one (1) of the following criteria:

(5)(B)1. The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified in 10 CSR 60-15.040(2)(C) for at least three (3) consecutive years; or

(5)(B)2. The department has determined that source water treatment is not needed and the system demonstrates that, during at least three (3) consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(5)(C) A water system that uses a new source of water is not eligible for reduced monitoring for lead, copper, or both, until concentrations in samples collected from the new source during three (3) consecutive monitoring periods are below the maximum permissible lead and copper concentrations.

10 CSR 60-16 Chapter 16--Drinking Water Fees

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10 CSR 60-16.010 Levy And Collection Of The Missouri Primacy Fee

PURPOSE: This rule levies and sets the amount of the annual Missouri primacy fee and describes the method for billing, collection and delinquent payment of the fee.

(1) This rule applies only to community water systems.

(2) This rule does not apply to customers receiving water for resale.

(3) This rule levies and imposes the Missouri primacy fee authorized by 640.100.6(2), RSMo.

(3)(A) The annual Missouri primacy fee per customer service connection for unmetered customers and customers with meters not greater than one inch (1") in size shall be based upon the number of service connections in the water system serving that customer as of September 1 of each annual fee period, and shall be--

11000 connections	\$2.00
10014000 connections	\$1.84
40017000 connections	\$1.67
700110,000 connections	\$1.50
10,00120,000 connections	\$1.34
20,00135,000 connections	\$1.17
35,00150,000 connections	\$1.00
50,001100,000 connections	\$.84
More than 100,000 connections	\$.66

(3)(B) The annual primacy fee for customers having meters greater than one inch (>1"), but less than or equal to two inches (≤ 2 ") in size, shall be five dollars (\$5); for customers with meters greater than two inches (>2"), but less than or equal to four inches (≤ 4 ") in size, shall be twenty-five dollars (\$25); and for customers with meters greater than four inches (>4") in size shall be fifty dollars (\$50).

(3)(C) Customers served by multiple connections shall pay an annual primacy fee based on the rates listed in subsection (3)(B) for each connection, except that no single facility served by multiple connections shall pay a total of more than five hundred dollars (\$500) per year.

(4) Fee Period and Election as to Frequency of Collection.

(4)(A) Beginning in calendar year 1992 and each year after that, the annual fee period is September 1 through August 31 of the succeeding calendar year.

(4)(B) On a form provided by the department, a community water system shall declare whether the fees will be collected monthly, quarterly or yearly. Any changes in the collection frequency shall be declared before the beginning of each annual fee period.

(4)(C) Where a service connection has no customer of record for all or a part of the annual fee period, then no fee shall be collected with respect to that service connection until the billing period during which a customer becomes a customer of record with respect to that service connection. The fee assessed for that billing period shall be one-twelfth (1/12), one-fourth (1/4) or all of the annual fee, depending upon the billing frequency elected by the water supply serving that service connection.

(5) Primacy Fee Separately Enumerated--How Accomplished.

(5)(A) Where water bills are sent, the fee may be listed separately from all other charges on each bill or may be included in the base minimum so long as--

(5)(A)1. A notation of the fee's inclusion in the minimum amount is placed on the bill;

(5)(A)2. An insert is sent with the bill notifying the customer of the presence of the primacy fee in the minimum; or

(5)(A)3. A notice is posted at the water supplier's customary place of business informing the public of the presence of the primacy fee in the minimum charge for the various meter sizes; and

(5)(A)4. The primacy fee is shown as a separate and distinct element of the minimum charges for various meter sizes in the water supplier's published rate schedule.

(5)(B) Where self-billing procedures are used, the community water system may wait until the next routine billing cycle to notify its customers and may use the same methods to separately enumerate the fee detailed in this rule when bills are sent.

(5)(C) Where all transactions are oral, the primacy fee shall be explained by a flyer mailed to each customer or by a notice posted at water supplier's customary place of business.

(5)(D) Where water charges are a part of a comprehensive bill for any number of services, a notation of the primacy fee's inclusion in the amount billed shall appear on the bill, or on an

insert mailed with the bill or upon a notice posted at the water supplier's customary place of business.

(5)(E) Nothing in this section in any way affects the obligation of a customer to pay the Missouri Primacy Fee.

(6) Remitting Fees to the State.

(6)(A) A community water system shall be responsible for reporting the amount collected from its customers. The fees collected shall be enumerated on a form provided by the Department of Natural Resources.

(6)(B) The fees collected shall be remitted to the Department of Natural Resources within sixty (60) days following the end of each calendar quarter. The calendar quarters end September 30, December 31, March 31 and June 30. No remittance or report is required if the water system did not collect any fees during that calendar quarter.

(6)(C) A community water system shall keep two percent (2%) of the fees being remitted for the purpose of reimbursing its expenses for billing and collection of these fees.

(7) Failure of the Public Water System to Collect or Remit the Fees to the State.

(7)(A) If the fees collected are not remitted as required in section (6), interest shall accrue on the entire amount from the original date payment was due, at a rate of twelve percent (12%) per annum until payment is remitted.

(7)(B) The department may grant an extension of time not to exceed two (2) months, to remit the fees, or may waive interest on fees collected.

(7)(C) In addition to the interest assessed, the department may take action in accordance with section 640.130, RSMo for failure to collect or remit the fees in a timely manner.

(8) Regular Rate Collection Practices Authorized. A water supply shall use all customary and regular rate collection practices when a customer fails to pay the primacy fee by the due date of the bill upon which the fee appears.

(9) Records Required to Be Kept.

(9)(A) These books and records documenting the collection of the fees from the customers shall be preserved by the water system for a period of at least three (3) years unless authorized by the department, in writing, to destroy and dispose of the books and records.

(9)(B) These books and records documenting the collection of the fees from the customers shall be subject to inspection by the appropriate authority at all times during business hours of the day.

(9)(C) The Department of Natural Resources shall keep forms filed for the payment of the fees in accordance with sections 109.200--109.310, RSMo.

10 CSR 60-16.020 Laboratory Certification Fee

PURPOSE: This rule establishes fees for certification of laboratories to conduct chemical testing of drinking water.

(1) The following laboratory certification fees shall be paid before a certification will be issued for chemical testing of drinking water under 10 CSR 60-5.020(2), (3), (4) or (5).

(1)(A) The fee for certification to analyze organic chemicals in drinking water shall be two thousand seven hundred dollars (\$2700) for each three (3)-year certification period.

(1)(B) The fee for certification to analyze inorganic chemicals in drinking water shall be one thousand five hundred dollars (\$1500) for each three (3)-year certification period.

(1)(C) The fee for a laboratory audit shall be two thousand five hundred dollars (\$2500).

10 CSR 60-16.030 Laboratory Services And Program Administration Fees

PURPOSE: This rule levies and sets the amount of the annual laboratory services and program administration fees and describes the method of remitting the fee to the department.

(1) This rule applies to all public water systems.

(2) This rule establishes the laboratory services and program administration fees authorized by section 640.100.4., RSMo. The fees cover the reasonable costs of laboratory services, both within the Department of Natural Resources and the Department of Health, and program administration, not to exceed the statutory limits of two hundred dollars (\$200) for a supplier servicing less than four thousand one hundred (4100) service connections, three hundred dollars (\$300) for a supplier serving less than seven thousand six hundred (7600) service connections, five hundred dollars (\$500) for a supplier serving seven thousand six hundred (7600) or more service connections, and five hundred dollars (\$500) for a supplier that uses surface water.

(3) The laboratory services and program administration fees are established at the following amounts. The fees are based on the estimated annual costs for laboratory services and program administration incurred by the state per public water system not to exceed the statutory limits shown in section (2) of this rule.

(3)(A) The annual fee for a transient noncommunity water system shall be--

Number of Service	Laboratory Services and
Connections	Program Administration Fees
(any)	\$100

(3)(B) The annual fees for all secondary public water systems and for public water systems, except transient noncommunity water systems, that use groundwater, including groundwater under the direct influence of surface water, shall be--

Number of Service	Laboratory Services and
Connections	Program Administration Fees
less than 4100	\$200
4100 to 7599	\$300
7600 or more	\$500

(3)(C) The annual fees for public water systems, except transient noncommunity water systems, that use surface water, including systems using both surface water and groundwater, shall be--

Number of Service	Laboratory Services and
Connections	Program Administration Fees
(any)	\$500

(4) Remission of Fees to the State.

(4)(A) All systems listed in the public water system inventory as of January 1 of each year shall remit the annual laboratory services and program administration fees for that calendar year by February 28 of the same year.

(4)(B) Failure to remit the fees as required will result in the following actions by the department:

(4)(B)1. Department of Natural Resources and Department of Health laboratory services shall be terminated for that water system for that calendar year;

(4)(B)2. Interest shall accrue on the entire amount from the original date payment was due at a rate of twelve percent (12%) per anum until payment is remitted;

(4)(B)3. The department may take action in accordance with section 640.130, RSMo and may revoke the system's permit to dispense water to the public; and

(4)(B)4. The department may grant an extension of time, not to exceed two (2) months, to remit the fees or may waive interest on fees.