

Under this heading will appear the text of proposed rules and changes. The notice of proposed rulemaking is required to contain an explanation of any new rule or any change in an existing rule and the reasons therefor. This is set out in the Purpose section with each rule. Also required is a citation to the legal authority to make rules. This appears following the text of the rule, after the word "Authority."

Entirely new rules are printed without any special symbology under the heading of the proposed rule. If an existing rule is to be amended or rescinded, it will have a heading of proposed amendment or proposed rescission. Rules which are proposed to be amended will have new matter printed in boldface type and matter to be deleted placed in brackets.

An important function of the *Missouri Register* is to solicit and encourage public participation in the rule-making process. The law provides that for every proposed rule, amendment or rescission there must be a notice that anyone may comment on the proposed action. This comment may take different forms.

If an agency is required by statute to hold a public hearing before making any new rules, then a Notice of Public Hearing will appear following the text of the rule. Hearing dates must be at least 30 days after publication of the notice in the *Missouri Register*. If no hearing is planned or required, the agency must give a Notice to Submit Comments. This allows anyone to file statements in support of or in opposition to the proposed action with the agency within a specified time, no less than 30 days after publication of the notice in the *Missouri Register*.

An agency may hold a public hearing on a rule even though not required by law to hold one. If an agency allows comments to be received following the hearing date, the close of comments date will be used as the beginning day in the 90-day-count necessary for the filing of the order of rulemaking.

If an agency decides to hold a public hearing after planning not to, it must withdraw the earlier notice and file a new notice of proposed rulemaking and schedule a hearing for a date not less than 30 days from the date of publication of the new notice.

Proposed Amendment Text Reminder:

Boldface text indicates new matter.

[Bracketed text indicates matter being deleted.]

Title 10—DEPARTMENT OF NATURAL RESOURCES Division 60—Public Drinking Water Program Chapter 2—Definitions

PROPOSED AMENDMENT

10 CSR 60-2.015 Definitions. The commission is amending subsections (2)(E)–(H), (2)(M) and (2)(T).

PURPOSE: This amendment adopts federal definitions from the Interim Enhanced Surface Water Treatment Rule and the Disinfection Byproducts Rule, published in the December 16, 1998 Federal Register. The federal rule, guidance and fact sheets are available at most public libraries and on the Internet at <http://www.epa.gov/safewater/mbdp/implement.html>.

(2) Definitions.

(E) Terms beginning with the letter 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. Engineer. An individual registered as a professional engineer in Missouri.

3. **Enhanced coagulation. The addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.**

4. **Enhanced softening. The improved removal of disinfection byproduct precursors by precipitative softening.**

(F) Terms beginning with the letter 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. **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.] 3. Filtration. A process for removing particulate matter from water by passage through porous media.

4. **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.**

[3.] 5. 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.

[4.] 6. 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.

(G) Terms beginning with the letter 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.**

[1.] 2. Gross alpha particle activity. The total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

[2.] 3. Gross beta particle activity. The total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

[3.] 4. Groundwater under the direct influence of surface water. Any water beneath the surface of the ground with either of the following:

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

B. Significant occurrence of insects or other [*micro*] macroorganisms, algae or large-diameter pathogens such as *Giardia lamblia* or, for systems using surface water or groundwater under the influence of surface water and serving at least ten thousand (10,000) people, *Cryptosporidium*.

(H) Terms beginning with the letter H. *[Reserved]*

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.

(M) Terms beginning with the letter 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 Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air or Water for Occupational Exposure, National Bureau of Standards Handbook 69.

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.

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.

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.

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.

[4.] **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.

[5.] **7. Missouri Safe Drinking Water [Act] Law.** The Revised Statutes of Missouri, sections 640.100, 640.105, 640.110, 640.115, 640.120, 640.125, 640.130, 640.135 and through 640.140.

(T) Terms beginning with the letter 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. 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.] **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.

[3.] **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.

[4.] **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.

[5.] **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.

AUTHORITY: section 640.100, RSMo [Supp. 1996] Supp. 1999. Original rule filed May 4, 1979, effective Sept. 14, 1979. For intervening history, please consult the Code of State Regulations. Amended: Filed Dec. 15, 1999.

PUBLIC COST: This proposed amendment is anticipated to cost state agencies and political subdivisions less than \$500 in the aggregate.

PRIVATE COST: This proposed amendment is anticipated to cost private entities less than \$500 in the aggregate.

NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: A public hearing will be held February 22, 2000, at the DNR Conference Center, 1735 Elm Street, Jefferson City, Missouri. The informational meeting and public hearing on the proposed rulemaking will begin at 10:00 a.m. Requests to comment at the public hearing should be sent in advance to the Public Drinking Water Program at the address provided at the end of this notice.

Anyone may submit comments in support of or in opposition to this proposed amendment. In preparing comments on the proposed amendment, please include the regulatory citation and the Missouri Register page number. Please explain why you agree or disagree with the proposed change, and include alternative options or language for consideration by the commission.

Written comments must be postmarked or received by March 2, 2000. Comments may be mailed, faxed or E-mailed to: Jerry L. Lane, P.E., Director, Public Drinking Water Program, P.O. Box 176, Jefferson City, MO 65102. The fax number is (573) 751-3110. The E-mail address is nrmccal@mail.dnr.state.mo.us.

Title 10—DEPARTMENT OF NATURAL RESOURCES Division 60—Public Drinking Water Program Chapter 4—Contaminant Levels and Monitoring

PROPOSED AMENDMENT

10 CSR 60-4.010 Maximum Contaminant Levels and Monitoring Requirements. The commission is amending the purpose statement and section (1), adding a new section (7), and renumbering section (7) to (8).

PURPOSE: This proposed amendment makes editorial corrections to section (1) and adds inspection and sanitary survey requirements for surface water systems.

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

(1) The [accompanying provisions] 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 [rule] 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.

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

(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.

(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. 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.

(C) 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.

[[7]] (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.

AUTHORITY: section 640.100, RSMo [Supp. 1993] Supp. 1999. Original rule filed May 4, 1979, effective Sept. 14, 1979. Amended: Filed April 14, 1981, effective Oct. 11, 1981. Amended: Filed Aug. 13, 1982, effective Jan. 13, 1983. Amended: Filed June 2, 1988, effective Aug. 31, 1988. Amended: Filed Dec. 4, 1990, effective July 8, 1991. Amended: Filed April 14, 1994, effective Nov. 30, 1994. Amended: Filed Dec. 15, 1999.

PUBLIC COST: This proposed amendment is anticipated to cost the Department of Natural Resources approximately \$36,012 annually each year the rule is in effect and 80 publicly-owned public water systems using surface water or groundwater under the direct influence of surface water approximately \$1,080 in the aggregate annually each year the rule is in effect. This rule is anticipated to be in effect in perpetuity.

PRIVATE COST: This proposed amendment is anticipated to cost 14 privately-owned public water systems using surface water or groundwater under the direct influence of surface water approximately \$188 in the aggregate annually each year the rule is in effect. This rule is anticipated to be in effect in perpetuity.

NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: A public hearing will be held February 22, 2000, at the DNR Conference Center, 1735 Elm Street, Jefferson City, Missouri. The informational meeting and public hearing on the proposed rulemaking will begin at 10:00 a.m. Requests to comment at the public hearing should be sent in advance to the Public Drinking Water Program at the address provided at the end of this notice.

Anyone may submit comments in support of or in opposition to this proposed amendment. In preparing comments on the proposed amendment, please include the regulatory citation and the Missouri Register page number. Please explain why you agree or disagree with the proposed change, and include alternative options or language for consideration by the commission.

Written comments must be postmarked or received by March 2, 2000. Comments may be mailed, faxed or E-mailed to: Jerry L. Lane, P.E., Director, Public Drinking Water Program, P.O. Box 176, Jefferson City, MO 65102. The fax number is (573) 751-3110. The E-mail address is nrmccal@mail.dnr.state.mo.us.

**FISCAL NOTE
PUBLIC ENTITY COST**

I. RULE NUMBER

Title: 10
 Division: 60
 Chapter: 4
 Type of Rulemaking: Proposed Amendment
 Rule Number and Name: 10 CSR 60-4.010 Maximum Contaminant Levels and Monitoring Requirements

II. SUMMARY OF FISCAL IMPACT

Affected Agency or Political Subdivision	Estimated Cost of Compliance in the Aggregate
Department of Natural Resources (DNR)	Annualized Aggregate Cost = \$36,012
80 Publicly-owned public water systems using surface water	Annualized Aggregate Cost = \$1,080
	Total Annualized Aggregate Cost* = \$37,092

*Because the rule is anticipated to be in effect in perpetuity, the cost of compliance in the aggregate for the lifetime of the rule cannot be accurately estimated. The total annualized aggregate cost is expected to remain constant for the duration of the rule, except that the cost does not take into account inflationary factors

III. WORKSHEET

MDNR Costs: 0.63 FTE Technical Staff X \$57,162 = \$ 36,012 staff costs

Water System Costs: .08 X 27 sanitary surveys X \$500 = \$1,080 costs for correcting significant deficiencies

IV. ASSUMPTIONS

- The 94 surface water systems affected by this rule will have to have a sanitary survey performed every three years. It is assumed that these sanitary surveys will be performed by DNR technical staff. It is assumed that approximately 1/3 of the 94 surface water supplies will have sanitary surveys each year, which is 31.3 sanitary surveys per year. Experience has shown that it takes roughly 40 hours to complete a sanitary survey. 40 hours per sanitary survey x 31.3 sanitary surveys = 1252 hours or 0.63 FTE
- DNR average FTE cost including salary, fringe benefits, and equipment and expenses is approximately \$57,162 for technical staff. The average annual work hours for an FTE is estimated at 2000 hours.
- It is estimated that approximately 27 sanitary surveys will be performed per year on publicly-owned public water systems affected by the rule (80 systems / 3 years = 26.6 sanitary surveys per year). It is assumed based on historical data that 8% of the sanitary surveys will detect a significant deficiency at an average cost of \$500 to correct.

**FISCAL NOTE
PRIVATE ENTITY COST**

I. RULE NUMBER

Title: 10
Division: 60
Chapter: 4
Type of Rulemaking: Proposed Amendment
Rule Number and Name: 10 CSR 60-4.010 Maximum Contaminant Levels and Monitoring Requirements

II. SUMMARY OF FISCAL IMPACT

Estimate the number of entities by class which would likely be affected by the adoption of the proposed amendment	Classification by types of the business entities which would likely be affected	Estimate of cost of Compliance in the Aggregate
14	Privately-owned public water systems using surface water as a source of supply	Annualized Aggregate Cost* = \$188

*Because the rule is anticipated to be in effect in perpetuity, the cost of compliance in the aggregate for the lifetime of the rule cannot be accurately estimated. The total annualized cost is expected to remain constant for the duration of the rule, except that the cost does not take into account inflationary factors.

III. WORKSHEET

Water System Costs: $.08 \times 4.7 \times \$500 = \188

IV. ASSUMPTIONS

This amendment affects public water systems using surface water as a source of supply. It is assumed that the 14 privately-owned public water systems affected by this rule will have a sanitary survey performed every three years. It is assumed that 4.7 sanitary surveys will be performed per year (14 systems / 3 years = 4.7). It is estimated by looking at results of past sanitary surveys that 8% of the sanitary surveys will detect a significant deficiency at a cost of \$500 to correct.

**Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 60—Public Drinking Water Program
Chapter 4—Contaminant Levels and Monitoring**

PROPOSED AMENDMENT

10 CSR 60-4.050 Maximum Turbidity Contaminant Levels and Monitoring Requirements. The commission is adding new sections (1) and (3) and amending sections (1)–(5).

PURPOSE: This proposed amendment adopts the new federal turbidity and filtration requirements established in EPA's Interim Enhanced Surface Water Treatment Rule published in the December 16, 1998 Federal Register (63 FR 69478–69520). The federal rule, guidance and fact sheets are available at most public libraries and on the Internet at <http://www.epa.gov/safewater/mdbp/implement.html>. This amendment encourages smaller water systems to strive to meet the new standards because this is likely to be a future federal requirement. This amendment requires new treatment facilities to be designed to the new standards.

(1) Applicability.

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

(B) The department strongly encourages systems serving less than ten thousand (10,000) people and using surface water or groundwater under the direct influence of surface water to strive to meet the maximum contaminant levels (MCLs) and turbidity standards in section (3) of this rule, since it is likely that federal regulations will require these systems to meet the more stringent standards in 2003.

(C) Beginning on the effective date of this amendment, any water treatment plant proposed for construction or major modification must be designed to meet the turbidity requirements in section (3) of this rule.

(2) Systems Serving Less Than Ten Thousand (10,000) People.

[[1]] (A) The [maximum contaminant levels (MCLs)] for turbidity[, applicable to all public water systems which use surface or ground water under the direct influence of surface water are as follows:].

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

[[B]] 2. The turbidity level must at no time exceed [F]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).

[[3]] (C) If the result of a single turbidity measurement exceeds the MCL established in subsection [(1)](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 [(1)](2)(A) of this rule.

[[4]] (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(1)(A)3.

[[5]] (E) The department, on a case-by-case basis, may allow a system to operate at an MCL for turbidity 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 construc-

tion, 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 MCL of 0.5 turbidity units due to raw water quality, iron, manganese or similar compelling factors. The request to operate at the higher turbidity MCL 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 MCL.

(3) Systems Serving Ten Thousand (10,000) or More People.

(A) The turbidity levels and other requirements in section (2) apply to these systems until December 16, 2001.

(B) Beginning December 16, 2001—

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

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

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

(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(1)(A)3.

(E) Lime Softening.

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

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.

(F) Filtration Technologies Other Than Conventional Filtration Treatment.

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 99 percent removal of *Cryptosporidium* oocysts, and the department approves the use of the filtration technology.

2. For each approval, the department will set turbidity performance requirements that the system must meet at least 95 percent 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.

AUTHORITY: section 640.100, RSMo [(1994)] Supp. 1999. Original rule filed May 4, 1979, effective Sept. 14, 1979. Amended: Filed April 14, 1981, effective Oct. 11, 1981. Amended: Filed July 12, 1991, effective Feb. 6, 1992. Amended: Filed Feb. 1, 1996, effective Oct. 30, 1996. Amended: Filed Dec. 15, 1999.

PUBLIC COST: This proposed amendment is anticipated to cost 17 publicly-owned public water systems serving 10,000 or more people and using surface water or groundwater under the direct

influence of surface water approximately \$720 annually in the aggregate each year the rule is in effect. The rule is anticipated to be in effect in perpetuity.

PRIVATE COST: This proposed amendment is anticipated to cost 5 privately-owned public water systems serving 10,000 or more people and using surface water or groundwater under the direct influence of surface water approximately \$240 annually in the aggregate each year the rule is in effect. The rule is anticipated to be in effect in perpetuity.

NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: A public hearing will be held February 22, 2000, at the DNR Conference Center, 1735 Elm Street, Jefferson City, Missouri. The informational meeting and public hearing on the proposed rulemaking will begin at 10:00 a.m. Requests to comment at the public hearing should be sent in advance to the Public Drinking Water Program at the address provided at the end of this notice.

*Anyone may submit comments in support of or in opposition to this proposed amendment. In preparing comments on the proposed amendment, please include the regulatory citation and the **Missouri Register** page number. Please explain why you agree or disagree with the proposed change, and include alternative options or language for consideration by the commission.*

Written comments must be postmarked or received by March 2, 2000. Comments may be mailed, faxed or E-mailed to: Jerry L. Lane, P.E., Director, Public Drinking Water Program, P.O. Box 176, Jefferson City, MO 65102. The fax number is (573) 751-3110. The E-mail address is nrmccal@mail.dnr.state.mo.us.

**FISCAL NOTE
PUBLIC ENTITY COST**

I. RULE NUMBER

Title: 10
 Division: 60
 Chapter: 4
 Type of Rulemaking: Proposed Amendment
 Rule Number and Name: 10 CSR 60-4.050 Maximum Turbidity Levels and Monitoring Requirements

II. SUMMARY OF FISCAL IMPACT

Affected Agency or Political Subdivision	Estimated Cost of Compliance in the Aggregate
Public water systems using surface water as a source of supply and serving 10,000 or more people	Annualized Aggregate Cost* = \$720
	Total Annualized Aggregate Cost = \$720

*Because the rule is anticipated to be in effect in perpetuity, the cost of compliance in the aggregate for the lifetime of the rule cannot be accurately estimated. The total annualized cost is expected to remain constant for the duration of the rule, except that the cost does not take into account inflationary factors.

III. WORKSHEET

3 MCL violations x 8 hours to resolve @\$30/hour = \$720

IV. ASSUMPTIONS

There are 17 publicly-owned surface water systems serving a population of 10,000 or more people that will have to meet the more stringent turbidity maximum contaminant levels (MCLs) proposed in this amendment. In looking at data from compliance with the current rule, meeting the new requirements of .3 NTU 95% of the time and a MCL of 1.0 in any single or confirmed measurement should not cause an additional cost to the affected water systems. These systems consistently strive to meet more stringent standards on their own. While these systems can consistently meet the new requirements, current results indicate you can expect a "system upset" periodically. We have assumed 3 MCLs per year with 8 hours for an operator to get the situation under control and voluntarily provide additional data and reports

**FISCAL NOTE
 PRIVATE ENTITY COST**

I. RULE NUMBER

Title: 10
 Division: 60
 Chapter: 4
 Type of Rulemaking: Proposed Amendment
 Rule Number and Name: 10 CSR 60-4.050 Maximum Turbidity Levels and Monitoring Requirements

II. SUMMARY OF FISCAL IMPACT

Estimate of the number of entities by class which would likely be affected by the adoption of the amendment	Classification by type of business entities which would likely be affected by the adoption of the amendment	Estimate Cost of Compliance in the aggregate
5	Privately owned public water systems using surface water as a source of supply and serving a population of 10,000 or more	Annualized Aggregate cost* = \$240

*Because the rule is anticipated to be in effect in perpetuity, the cost of compliance in the aggregate for the lifetime of the rule cannot be accurately estimated. The total annualized cost is expected to remain constant for the duration of the rule, except that the estimated cost does not take into account inflationary factors.

III. WORKSHEET

Surface Water System serving 10,000 or more people: 1 MCL X 8 hours @\$30/hour = \$240

IV. ASSUMPTIONS

There are five privately-owned surface water systems in the Missouri serving a population of 10,000 or more. They will have to meet the more stringent turbidity maximum contaminant levels (MCLs). In looking at data from the current rule, meeting the .3 NTU 95% of the time and a MCL of 1.0 in any single or confirmed measurement should not cause an additional cost to the affected water systems. These systems consistently strive to meet more stringent standards on their own. While these systems can consistently meet the new requirements, current results indicate you can expect a "system upset" periodically. We have assumed 1 MCLs per year with 8 hours for an operator to get the situation under control and voluntarily provide additional data and reports not required by the rule.

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 60—Public Drinking Water Program
Chapter 4—Contaminant Levels and Monitoring

PROPOSED AMENDMENT

10 CSR 60-4.055 Disinfection Requirements. The commission is amending subsection (2)(D) and adding sections (5) and (6).

PURPOSE: This proposed amendment incorporates additional disinfection requirements for water systems using surface water or groundwater under the influence of surface water and serving at least 10,000 people and adds maximum residual disinfection level requirements.

Detailed information about these requirements is available in the federal Interim Enhanced Surface Water Treatment Rule and Disinfectants/Disinfection Byproducts Rule published in the December 16, 1998 Federal Register. The federal rule, guidance and fact sheets are available at most public libraries and on the Internet at <http://www.epa.gov/safewater/mbdp/implement.html>.

(2) Contact Time and Removal Credit.

(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 10 CSR 60-3.010 until disinfection contact times are determined and submitted to the department.

(5) Maximum Residual Disinfectant Levels.

(A) Maximum residual disinfectant levels (MRDL) are—

Disinfectant Residual	MRDL (mg/l)
Chlorine	4.0 (as Cl ₂)
Chloramines	4.0 (as Cl ₂)
Chlorine dioxide	0.8 (as ClO ₂)

(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.

(C) Compliance Dates.

1. Community water systems and nontransient noncommunity water systems.

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 December 16, 2001.

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 December 16, 2003.

2. Transient noncommunity water systems.

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 December 16, 2001.

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 December 16, 2003.

(6) Enhanced Disinfection Requirements.

(A) Compliance Date. In addition to 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 must also comply with the requirements in this section beginning December 16, 2001 unless otherwise specified.

(B) General Requirements.

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 serving at least ten thousand (10,000) people 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—

A. At least nine-ninety 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 for filtered systems; and

B. Compliance with the profiling and benchmark requirements under the provisions of subsection (6)(C) of this rule.

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.

(C) Disinfection Profiling and Benchmarking.

1. Disinfection profile. A disinfection profile is a summary of daily *Giardia lamblia* inactivation through the treatment plant. 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.

A. The TTHM annual average must be the annual average during the same period as is used for the HAA5 annual average.

(I) Those systems that use “grandfathered” HAA5 occurrence data that meet the provisions of item (5)(C)1.B.(I) of this rule must use TTHM data collected at the same time under the provisions of 10 CSR 60-4.090.

(II) Those systems that use HAA5 occurrence data that meet the provisions of subitem (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.

B. The HAA5 annual average must be the annual average during the same period as is used for the TTHM annual average.

(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 10 CSR 60-4.090 and handling and analytical method requirements of 40 CFR 141.142 may use those data to determine whether the requirements of this section apply.

(II) Those systems that did not collect four (4) quarters of HAA5 occurrence data that meets the provisions of item (6)(C)1.B.(I) of this rule by March 16, 1999 must either—

(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

(b) Comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with paragraph (6)(C)2. of this rule.

C. The system must submit data to the department on the schedule required by the department.

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 (5)(C)1.A. and B. of this rule must comply with paragraph (6)(C)2. of this rule.

2. Disinfection profiling.

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.

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 "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:

(I) The temperature of the disinfected water must be measured once per day at each residual disinfectant concentration sampling point during peak hourly flow;

(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;

(III) The disinfectant contact time(s) must be determined for each day during peak hourly flow; and

(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.

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 item (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 item (6)(C)2.C.(II) of this rule.

(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 (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 (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 (6)(C)2.B. of this rule.

(II) In addition to the disinfection profile generated under subparagraph (6)(C)2.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 (6)(C)3. of this rule. The department will determine whether these operational data are substantially equivalent to data collected under the provisions of subparagraph (6)(C)2.B. of this rule. These data must also be representative of inactivation through the entire treatment plant and not just of certain treatment segments.

D. The system must calculate the total inactivation ratio as follows:

(I) The system may determine the total inactivation ratio for the disinfection segment based on either of the following methods:

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

(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. Under this alternative, the system must calculate the total inactivation ratio by determining ($CT_{calc}/CT_{99.9}$) for each sequence and then adding the ($CT_{calc}/CT_{99.9}$) values together to determine ($\Sigma(CT_{calc}/CT_{99.9})$); and

(II) The system must determine the total logs of inactivation by multiplying the value calculated in item (6)(C)2.D.(I) of this rule by three (3.0).

E. 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."

F. 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.

3. Disinfection benchmarking.

A. Any system required to develop a disinfection profile under the provisions of paragraphs (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—

(I) Changes to the point of disinfection;

(II) Changes to the disinfectant(s) used in the treatment plant;

(III) Changes to the disinfection process; and

(IV) Any other modification identified by the department.

B. Any system that is modifying its disinfection practice must calculate its disinfection benchmark using one of the following procedures:

(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 daily *Giardia lamblia* of inactivation by the number of values calculated for that month; or

(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 year of profiling data) of the monthly logs of *Giardia lamblia* inactivation in each year of profiling data.

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.

D. The system must submit the following information to the department as part of its consultation process:

(I) A description of the proposed change;

(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

(III) An analysis of how the proposed change will affect the current levels of disinfection.

(D) Filtration Sampling Requirements.

1. A public water system subject to the requirements of this section (5) 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.

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, but for no more than five (5) working days following the failure of the equipment.

AUTHORITY: section 640.100, RSMo [1994] Supp. 1999. Original rule filed July 12, 1991, effective Feb. 6, 1992. Amended: Filed Feb. 1, 1996, effective Oct. 30, 1996. Amended: Filed Dec. 15, 1999.

PUBLIC COST: This proposed amendment is anticipated to cost the Department of Natural Resources approximately \$2,743 in the aggregate each year the rule is in effect, and publicly-owned public water systems serving 10,000 or more people and using surface water or groundwater under the direct influence of surface water approximately \$544,191 during the first year of compliance (calendar year 2002) and approximately \$93,075 annually in the aggregate each year thereafter that the rule is in effect. The rule is anticipated to be in effect in perpetuity.

PRIVATE COST: This proposed amendment is anticipated to cost five privately-owned public water systems serving 10,000 or more people and using surface water or groundwater under the direct

influence of surface water approximately \$144,051 during the first year of compliance (calendar year 2002) and approximately \$27,375 annually in the aggregate each year thereafter that the rule is in effect. The rule is anticipated to be in effect in perpetuity.

NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: A public hearing will be held February 22, 2000, at the DNR Conference Center, 1735 Elm Street, Jefferson City, Missouri. The informational meeting and public hearing on the proposed rulemaking will begin at 10:00 a.m. Requests to comment at the public hearing should be sent in advance to the Public Drinking Water Program at the address provided at the end of this notice.

Anyone may submit comments in support of or in opposition to this proposed amendment. In preparing comments on the proposed amendment, please include the regulatory citation and the Missouri Register page number. Please explain why you agree or disagree with the proposed change, and include alternative options or language for consideration by the commission.

Written comments must be postmarked or received by March 2, 2000. Comments may be mailed, faxed or E-mailed to: Jerry L. Lane, P.E., Director, Public Drinking Water Program, P.O. Box 176, Jefferson City, MO 65102. The fax number is (573) 751-3110. The E-mail address is nrmccal@mail.dnr.state.mo.us.

FISCAL NOTE
PUBLIC ENTITY COST

I. RULE NUMBER

Title: 10
Division: 60
Chapter: 4
Type of Rulemaking: Proposed Amendment
Rule Number and Name: 10 CSR 60-4.055 Disinfection Requirements

II. SUMMARY OF FISCAL IMPACT

Affected Agency or Political Subdivision	Estimated Cost of Compliance during the first year of compliance (calendar year 2002)	Annualized Aggregate Cost following the first year of compliance*
17 Publicly-owned public water systems using surface water as a source of supply and serving 10,000 or more people	\$544,191	\$93,075
Department of Natural Resources	\$2,743	\$2,743
Total	\$546,934	\$95,818

*Because the rule is anticipated to be in effect in perpetuity, the cost of compliance in the aggregate for the lifetime of the rule cannot be accurately estimated. The total annualized cost is expected to remain constant for the duration of the rule after the first year of compliance, except that the estimated cost does not take into account inflationary factors.

III. WORKSHEET

MDNR Costs:

1. Review Benchmark and Turbidity Results 1 day/mo X 12 mo = 96 hours or .048 FTE
.048 X \$57,162 = \$2,743
2. MDNR average FTE cost including salary, fringe benefits, and equipment and expenses is approximately \$57,162 for technical staff. The average annual work hours for an FTE is estimated at 2000 hours

Public Water System Costs:

1. Disinfection benchmark per PWS = 1hrs/day X 365 days X \$30 per hour X 6 systems = \$59,700
2. 14 systems X 12 filters X \$1,795 per filter plus 10% installation costs = \$391,416
3. On-going costs for individual filter monitoring = .5 hour/day X \$30/hour X 365 days/year X 17 systems = \$93,075/year

IV. ASSUMPTIONS

1. The assumption is made that the water systems affected by this rule will be able to meet the new MRDLs without any further costs.
2. It is assumed, based on preliminary data, that six publicly owned systems will have to do a disinfection profile and create a disinfection benchmark of their disinfection practices. It is assumed that these systems will have to spend one hour per day to collect the necessary data.
3. It is estimated that 25% of the surface water systems serving 10,000 or more people currently have individual turbidimeters on each filter. The rule requires individual turbidimeters on each filter and continuous monitoring (every 15 minutes). The estimated cost per turbidimeter is \$1,795 (price per Hach Catalog). It is assumed that the average treatment plant has 12 filters. This would be a total cost of 14 water systems X 12 filters X \$1,795 per filter = \$301,560 plus 10% for installation costs = \$331,716. For each water system without individual turbidimeters already, the cost to purchase and install them would be \$23,694 per system.
3. It is assumed that each affected system will have to spend 0.5 hours/day operating, recording and monitoring their turbidity results at each filter

**FISCAL NOTE
PRIVATE ENTITY COST**

I. RULE NUMBER

Title: 10
 Division: 60
 Chapter: 4
 Type of Rulemaking: Proposed Amendment
 Rule Number and Name: 10 CSR 60-4.055-Disinfection Requirements

II. SUMMARY OF FISCAL IMPACT

Estimate of the number of entities by class which would likely be affected by the adoption of the proposed amendment	Classification by types of business entities which would likely be affected	Estimated cost of compliance
5	Privately-owned public water systems using surface water or ground water under the direct influence of surface water and serving >10,000 people	First year of compliance = \$144,051 Each subsequent year = \$27,375 annual cost*

*Because the rule is anticipated to be in effect in perpetuity, the cost of compliance in the aggregate for the lifetime of the rule cannot be accurately estimated. The annual aggregate cost is expected to remain constant for the duration of the rule, after the first year of implementation, except that the estimated cost does not take into account inflationary factors.

II. WORKSHEET

The estimated costs for the first year of compliance were calculated as follows:

Disinfection benchmark: 2 water systems X 1hrs/day X \$30 per hour X 365 days = \$21,900
 Individual turbidimeter costs: 4 water systems X 12 filters X \$1,795 per filter + 10% installation cost = \$94,776
 Individual turbidimeter costs: 5 water systems X .5 hours/day X \$30/hr X 365 days/year = \$27,375

Estimated annual costs are:

Individual turbidimeter costs: 5 water systems X .5 hours/day X \$30/hr X 365 days/year = \$27,375

III. ASSUMPTIONS

1. Of the five surface water systems serving 10,000 or more people, preliminary data indicates two systems will have to create a disinfection benchmark of their disinfection practices. It is assumed that each water system will have to spend one hour per day to collect the necessary data.
2. The estimated costs associated with purchasing and installing individual turbidimeters was calculated as follows. Five privately owned surface water systems serving a population of 10,000 or more people are required to have individual turbidimeters on each filter and to conduct continuous monitoring (every 15 minutes). It is estimated that four of the five systems currently do not have turbidimeters on each filter. The estimated cost per turbidimeter is \$1,795 (price per Hach Catalog). With the average treatment plant in this size category having 12 filters, this would be a total cost of: 4 water systems X 12 filters X \$1,795 per filter = \$86,160 plus 10% for installation costs = \$94,776
3. It is estimated that the 5 private water systems affected by this rule will have to spend 0.5 hours per day on monitoring and reporting requirements for their individual turbidimeter monitoring.