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SALUS POPULI SUPREMA LEX ESTO

"The welfare of the people shall be the supreme law."



ROBIN CARNAHAN
SECRETARY OF STATE

MISSOURI
REGISTER

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Documents will be accepted for filing on all regular workdays from 8:00 a.m. until 5:00 p.m. We encourage early filings to facilitate the timely publication of the *Missouri Register*. Orders of Rulemaking appearing in the *Missouri Register* will be published in the *Code of State Regulations* and become effective as listed in the chart above. Advance notice of large volume filings will facilitate their timely publication. We reserve the right to change the schedule due to special circumstances. Please check the latest publication to verify that no changes have been made in this schedule. To review the entire year's schedule, please check out the website at <http://www.sos.mo.gov/adrules/pubsched.asp>

Missouri Participating Libraries

The *Missouri Register* and the *Code of State Regulations*, as required by the Missouri Documents Law (section 181.100, RSMo Supp. 2008), are available in the listed participating libraries, as selected by the Missouri State Library:

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HOW TO CITE RULES AND RSMo

RULES—Cite material in the *Missouri Register* by volume and page number, for example, Vol. 28, *Missouri Register*, page 27. The approved short form of citation is 28 MoReg 27.

The rules are codified in the *Code of State Regulations* in this system—

Title	Code of State Regulations	Division	Chapter	Rule
1	CSR	10-	1.	010
Department		Agency, Division	General area regulated	Specific area regulated

They are properly cited by using the full citation, i.e., 1 CSR 10-1.010.

Each department of state government is assigned a title. Each agency or division within the department is assigned a division number. The agency then groups its rules into general subject matter areas called chapters and specific areas called rules. Within a rule, the first breakdown is called a section and is designated as (1). Subsection is (A) with further breakdown into paragraph 1., subparagraph A., part (I), subpart (a), item I. and subitem a.

RSMo—The most recent version of the statute containing the section number and the date.

Rules appearing under this heading are filed under the authority granted by section 536.025, RSMo 2000. An emergency rule may be adopted by an agency if the agency finds that an immediate danger to the public health, safety or welfare, or a compelling governmental interest requires emergency action; follows procedures best calculated to assure fairness to all interested persons and parties under the circumstances; follows procedures which comply with the protections extended by the *Missouri* and the *United States Constitutions*; limits the scope of such rule to the circumstances creating an emergency and requiring emergency procedure, and at the time of or prior to the adoption of such rule files with the secretary of state the text of the rule together with the specific facts, reasons and findings which support its conclusion that there is an immediate danger to the public health, safety or welfare which can be met only through the adoption of such rule and its reasons for concluding that the procedure employed is fair to all interested persons and parties under the circumstances.

Rules filed as emergency rules may be effective not less than ten (10) days after filing or at such later date as may be specified in the rule and may be terminated at any time by the state agency by filing an order with the secretary of state fixing the date of such termination, which order shall be published by the secretary of state in the *Missouri Register* as soon as practicable.

All emergency rules must state the period during which they are in effect, and in no case can they be in effect more than one hundred eighty (180) calendar days or thirty (30) legislative days, whichever period is longer. Emergency rules are not renewable, although an agency may at any time adopt an identical rule under the normal rulemaking procedures.

**Title 15—ELECTED OFFICIALS
Division 60—Attorney General
Chapter 15—Unauthorized Alien Workers**

EMERGENCY RULE

15 CSR 60-15.010 Definitions

PURPOSE: This rule defines terms used in section 285.525, RSMo Supp. 2008.

EMERGENCY STATEMENT: The 94th General Assembly amended the provisions of Chapter 285 through the passage of House Bill No. 1549. Sections 285.525 through 285.550, RSMo, are new sections relating to the employment of unauthorized aliens within the state of Missouri. These sections were effective January 1, 2009, and require the attorney general to promulgate rules to implement their provisions. This emergency rule is necessary to protect a compelling governmental interest in that without regulations implementing the provisions of these newly effective sections, there may be business entities or state residents with obligations under the law without a mechanism in place for compliance with those obligations. The provisions in this rule will provide business entities and state residents with access to forms and procedures necessary to assist in compliance with the obligations of the statute. A proposed rule, which covers the same material, is published in this issue of the *Missouri Register*. The scope of this emergency rule is limited to the circumstances creating the emergency and complies with the protections extended in the

Missouri and United States Constitutions. The Office of the Attorney General believes this emergency rule is fair to all interested persons and parties under the circumstances. The emergency rule was filed March 2, 2009, effective March 12, 2009, and expires September 7, 2009.

(1) The terms used in Title 15, Division 60, Chapter 15 of the *Code of State Regulations* bear the same meaning in the rules pertaining to unauthorized alien workers as they do in section 285.525, RSMo Supp. 2008, as amended from time-to-time.

(2) The following definitions further clarify terms used in section 285.525, RSMo Supp. 2008, and Title 15, Division 60, Chapter 15 of the *Code of State Regulations*:

(A) “Business Entity”—in addition to the definition as used in section 285.525(1), RSMo Supp. 2008, business entities include limited liability corporations (LLCs);

(B) “Identity Information”—includes a copy of a passport or two (2) of the following: birth certificate, driver license, or Social Security card; OR an E-verify case verification number and/or dated verification report received from the federal government; and

(C) “State administered or subsidized tax credit, tax abatement, or loan” includes credits provided under section 99.845.4-.12, RSMo 2000.

AUTHORITY: section 285.540, RSMo Supp. 2008. Emergency rule filed March 2, 2009, effective March 12, 2009, expires Sept. 7, 2009. A proposed rule covering this same material is published in this issue of the *Missouri Register*.

**Title 15—ELECTED OFFICIALS
Division 60—Attorney General
Chapter 15—Unauthorized Alien Workers**

EMERGENCY RULE

15 CSR 60-15.020 Form of Affidavit

PURPOSE: This rule prescribes the form of affidavit to be submitted by business entities or employers who fall under the provisions of section 285.530, RSMo Supp. 2008.

EMERGENCY STATEMENT: The 94th General Assembly amended the provisions of Chapter 285 through the passage of House Bill No. 1549. Sections 285.525 through 285.550, RSMo, are new sections relating to the employment of unauthorized aliens within the state of Missouri. These sections were effective January 1, 2009, and require the attorney general to promulgate rules to implement their provisions. This emergency rule is necessary to protect a compelling governmental interest in that without regulations implementing the provisions of these newly effective sections, there may be business entities or state residents with obligations under the law without a mechanism in place for compliance with those obligations. The provisions in this rule will provide business entities and state residents with access to forms and procedures necessary to assist in compliance with the obligations of the statute. A proposed rule, which covers the same material, is published in this issue of the *Missouri Register*. The scope of this emergency rule is limited to the circumstances creating the emergency and complies with the protections extended in the *Missouri and United States Constitutions*. The Office of the Attorney General believes this emergency rule is fair to all interested persons and parties under the circumstances. The emergency rule was filed March 2, 2009, effective March 12, 2009, and expires September 7, 2009.

(1) As a condition for the award of any contract or grant in excess of five thousand dollars (\$5,000) by the state or by any political subdivision of the state to a business entity, or for any business entity receiving a state-administered or subsidized tax credit, tax abatement, or loan from the state, the business entity shall submit an affidavit containing the following:

(A) A statement that the business entity has enrolled in, and is currently participating in, E-verify, a federal work authorization program, or any other equivalent electronic verification of work authorization program operated by the United States Department of Homeland Security under the Immigration Reform and Control Act of 1986 (IRCA);

(B) A statement that the business entity does not knowingly employ any person who is an unauthorized alien in conjunction with the contracted services; and

(C) A notarized signature of the registered agent, legal representative of the business entity, or a corporate officer, including, but not limited to, the human resources director of the business entity or their equivalent.

(2) Within ninety (90) days of the effective date of this regulation, any business entity having a contract or grant in excess of five thousand dollars (\$5,000) from the state, a political subdivision, municipality, or county shall submit an affidavit to the state or appropriate political subdivision, municipality, or county in the form set forth above in section (1).

(3) Within ninety (90) days of the effective date of this regulation, any business entity receiving a state administered or subsidized tax credit, tax abatement, or loan from the state shall submit an affidavit to the state in the form set forth above in section (1).

(4) Employers shall retain a copy of the dated verification report received from the federal government.

AUTHORITY: section 285.540, RSMo Supp. 2008. Emergency rule filed March 2, 2009, effective March 12, 2009, expires Sept. 7, 2009. A proposed rule covering this same material is published in this issue of the Missouri Register.

**Title 15—ELECTED OFFICIALS
Division 60—Attorney General
Chapter 15—Unauthorized Alien Workers**

EMERGENCY RULE

15 CSR 60-15.030 Complaints

PURPOSE: This rule prescribes procedures for filing complaints that a business entity or employer has knowingly employed, hired for employment, or continued to employ an unauthorized alien to perform work in Missouri in violation of section 285.530, RSMo Supp. 2008.

EMERGENCY STATEMENT: The 94th General Assembly amended the provisions of Chapter 285 through the passage of House Bill No. 1549. Sections 285.525 through 285.550, RSMo, are new sections relating to the employment of unauthorized aliens within the state of Missouri. These sections were effective January 1, 2009, and require the attorney general to promulgate rules to implement their provisions. This emergency rule is necessary to protect a compelling governmental interest in that without regulations implementing the provisions of these newly effective sections, there may be business entities or state residents with obligations under the law without a mechanism in place for compliance with those obligations. The provisions in this rule will provide business entities and state residents with access to forms and procedures necessary to assist in compliance

with the obligations of the statute. A proposed rule, which covers the same material, is published in this issue of the Missouri Register. The scope of this emergency rule is limited to the circumstances creating the emergency and complies with the protections extended in the Missouri and United States Constitutions. The Office of the Attorney General believes this emergency rule is fair to all interested persons and parties under the circumstances. The emergency rule was filed March 2, 2009, effective March 12, 2009, and expires September 7, 2009.

(1) State officials, business entities, or any state resident may file a complaint with the Missouri Attorney General's Office that a business entity or employer has knowingly employed, hired for employment, or continued to employ an unauthorized alien to perform work in Missouri in violation of section 285.530, RSMo Supp. 2008.

(2) Persons wishing to file a complaint may request a complaint form from the Missouri Attorney General's Office, PO Box 899, Jefferson City, MO 65102 or may download and print off the form from the Missouri Attorney General's website at www.ago.mo.gov.

(3) A complaint form must be completed in its entirety, and the person submitting a complaint must—

(A) Provide information about the business entity or employer alleged to be violating the statute;

(B) Provide their contact information;

(C) Verify that they are either: a Missouri resident, a state official or a registered agent, corporate officer, or legal representative of the business entity;

(D) A detailed description of the violation;

(E) A declaration under the penalty of perjury that the complaint is true and correct to the best of their knowledge and belief; and

(F) A notarized signature.

(4) Complaints cannot allege a violation solely or primarily on the basis of national origin, ethnicity, or race.

(5) Completed complaint forms should be returned to the Missouri Attorney General's Office, PO Box 899, Jefferson City, MO 65102.

AUTHORITY: section 285.540, RSMo Supp. 2008. Emergency rule filed March 2, 2009, effective March 12, 2009, expires Sept. 7, 2009. A proposed rule covering this same material is published in this issue of the Missouri Register.

**Title 15—ELECTED OFFICIALS
Division 60—Attorney General
Chapter 15—Unauthorized Alien Workers**

EMERGENCY RULE

15 CSR 60-15.040 Investigation of Complaints

PURPOSE: This rule describes the process related to investigating valid complaints authorized by section 285.535, RSMo Supp. 2008.

EMERGENCY STATEMENT: The 94th General Assembly amended the provisions of Chapter 285 through the passage of House Bill No. 1549. Sections 285.525 through 285.550, RSMo, are new sections relating to the employment of unauthorized aliens within the state of Missouri. These sections were effective January 1, 2009, and require the attorney general to promulgate rules to implement their provisions. This emergency rule is necessary to protect a compelling governmental interest in that without regulations implementing the provisions of these newly effective sections, there may be business entities or state residents with obligations under the law without a mechanism

in place for compliance with those obligations. The provisions in this rule will provide business entities and state residents with access to forms and procedures necessary to assist in compliance with the obligations of the statute. A proposed rule, which covers the same material, is published in this issue of the Missouri Register. The scope of this emergency rule is limited to the circumstances creating the emergency and complies with the protections extended in the Missouri and United States Constitutions. The Office of the Attorney General believes this emergency rule is fair to all interested persons and parties under the circumstances. The emergency rule was filed March 2, 2009, effective March 12, 2009, and expires September 7, 2009.

(1) Upon the receipt of a valid complaint, the Missouri Attorney General's Office shall, within fifteen (15) days, send a request by certified mail to the business entity requesting identity information regarding person(s) alleged to be unauthorized alien(s).

(2) Identity information to be provided includes copies of the following:

- (A) A passport; or
- (B) Two (2) of the following: birth certificate, driver license, and Social Security card; or
- (C) E-verify case verification number and/or dated verification report received from the federal government.

(3) The business entity shall provide the identity information within fifteen (15) days of the receipt of the request. If the business entity fails to do so, the Attorney General shall direct the applicable state agency, political subdivision, and municipal or county governing body to suspend any licenses or permits of the business entity unless the business entity submits as evidence, through its legal representative as noted in section (4) below, one (1) of the following within the fifteen (15)-day period:

- (A) The business entity has terminated the individual, or is attempting to terminate the individual and is being challenged in court; or
- (B) The business entity, after acquiring additional information from the employee, has requested a secondary or additional verification by the federal government of the employee's authorization.

(4) If a business entity fails to comply with the provisions of section 285.535.5(a), RSMo, he may ask the court to direct any applicable state agency, political subdivision, and municipal or county governing body to suspend any business permits or license of the business entity until the entity complies with section (6).

(5) If a business entity fails to comply with the provisions of section 285.535.5(b), RSMo, the attorney general may ask the court to direct any applicable state agency, political subdivision, and municipal or county governing body to suspend for fourteen (14) days any business permits or license of the business entity. The licenses or permits may be reinstated for entities who comply with section (6) at the end of the fourteen (14)-day period.

(6) Upon the first violation of subsection 1 of section 285.530, RSMo, by any business entity awarded a contract or grant by the state, a political subdivision, municipality, or county or any business entity receiving a state-administered tax credit, tax abatement, or loan or loan guarantee from the state shall be deemed in breach of contract and the state, political subdivision, municipality, or county may terminate the contract. Upon such termination the state, political subdivision, municipality, or county may withhold up to twenty-five percent (25%) of the total amount due to the business entity.

(7) Upon receipt of notice of such termination of a contract or grant or a violation of subsection 1 of section 285.530, RSMo, by the recipient of a state-administered tax credit, tax abatement, or loan or

loan guarantee from the state, the attorney general shall suspend or debar the business entity from doing business with any state, political subdivision, municipality, or county for a period of three (3) years.

(8) The attorney general shall maintain on his website a list of all business entities suspended or debarred under this section.

(9) A person authorized to act of behalf of an employer shall submit a sworn affidavit to the Missouri Attorney General, PO Box 899, Jefferson City, MO 65102, stating the violation has ended and provide—

(A) Evidence of the specific measures taken to end the violation, which shall, at a minimum, include a notarized affidavit describing the events surrounding the termination of employment from the human resources director or other officer of the business entity whose duties include terminating the employment of employees, etc.;

(B) The name, address, and all identifying information available to the business entity concerning the unauthorized alien(s) related to the complaint; and

(C) Evidence that the business entity has enrolled in, and is currently participating in, E-verify, a federal work authorization program, or any other equivalent electronic verification of work authorization program operated by the United States Department of Homeland Security under the Immigration Reform and Control Act of 1986 (IRCA).

AUTHORITY: section 285.540, RSMo Supp. 2008. Emergency rule filed March 2, 2009, effective March 12, 2009, expires Sept. 7, 2009. A proposed rule covering this same material is published in this issue of the Missouri Register.

**Title 15—ELECTED OFFICIALS
Division 60—Attorney General
Chapter 15—Unauthorized Alien Workers**

EMERGENCY RULE

15 CSR 60-15.050 Notification by Federal Government that Individual is Not Authorized to Work

PURPOSE: This rule describes the process to be utilized when the federal government notifies the Missouri Attorney General's Office that an individual is not authorized to work and the duties required of the employer by section 285.535, RSMo Supp. 2008.

EMERGENCY STATEMENT: The 94th General Assembly amended the provisions of Chapter 285 through the passage of House Bill No. 1549. Sections 285.525 through 285.550, RSMo, are new sections relating to the employment of unauthorized aliens within the state of Missouri. These sections were effective January 1, 2009, and require the attorney general to promulgate rules to implement their provisions. This emergency rule is necessary to protect a compelling governmental interest in that without regulations implementing the provisions of these newly effective sections, there may be business entities or state residents with obligations under the law without a mechanism in place for compliance with those obligations. The provisions in this rule will provide business entities and state residents with access to forms and procedures necessary to assist in compliance with the obligations of the statute. A proposed rule, which covers the same material, is published in this issue of the Missouri Register. The scope of this emergency rule is limited to the circumstances creating the emergency and complies with the protections extended in the Missouri and United States Constitutions. The Office of the Attorney General believes this emergency rule is fair to all interested persons and parties under the circumstances. The emergency rule was filed March 2, 2009, effective March 12, 2009, and expires September 7, 2009.

(1) Upon notification from the federal government to the Missouri Attorney General's Office that an individual is not authorized to work, and the employer participates in a federal work authorization program, the Missouri Attorney General's Office shall notify the employer to comply with section 285.535.6, RSMo Supp. 2008.

(2) The employer shall, through its legal representative as noted in section (3) below, submit evidence of one (1) of the following within thirty (30) days:

(A) The business entity has terminated the employment of the individual or is attempting to terminate the employment of the individual and is being challenged in court; or

(B) The business entity, after acquiring additional information from the employee, has requested a secondary or additional verification by the federal government of the employee's authorization.

(3) The legal representative of the business entity shall submit a sworn affidavit to the Missouri Attorney General, PO Box 899, Jefferson City, MO 65102, stating the violation has ended and provide—

(A) Evidence of the specific measures taken to end the violation, which shall, at a minimum, include a notarized affidavit describing the events surrounding the termination of employment from the human resources director or other officer of the business entity whose duties include terminating the employment of employees, etc.;

(B) The name, address, and all identifying information available to the business entity concerning the unauthorized alien(s) related to the complaint; and

(C) Evidence that the business entity has enrolled in, and is currently participating in, E-verify, a federal work authorization program, or any other equivalent electronic verification of work authorization program operated by the United States Department of Homeland Security under the Immigration Reform and Control Act of 1986 (IRCA).

AUTHORITY: section 285.540, RSMo Supp. 2008. Emergency rule filed March 2, 2009, effective March 12, 2009, expires Sept. 7, 2009. A proposed rule covering this same material is published in this issue of the Missouri Register.

The Secretary of State shall publish all executive orders beginning January 1, 2003, pursuant to section 536.035.2, RSMo Supp. 2008.

EXECUTIVE ORDER 09-12

WHEREAS, the President of the United States has signed into law the American Recovery and Reinvestment Act of 2009 (“Recovery Act”); and

WHEREAS, it is essential for the State of Missouri to administer the Recovery Act in a manner that will create jobs, improve infrastructure, and transform our economy for the 21st century; and

WHEREAS, the Recovery Act requires that it be administered quickly and efficiently, consistent with prudent management, so as to achieve its purposes; and

WHEREAS, numerous programs and projects administered by executive branch departments of the State of Missouri are affected by the Recovery Act; and

WHEREAS, personnel in the executive branch departments are familiar with the eligible programs and projects and can provide invaluable assistance as the State of Missouri implements a strategy regarding the Recovery Act.

NOW, THEREFORE, I, JEREMIAH W. (JAY) NIXON, Governor of Missouri, by virtue of the authority vested in me by the Constitution and laws of the State of Missouri do hereby create and establish the Transform Missouri Initiative.

The Transform Missouri Initiative will analyze the American Recovery and Reinvestment Act of 2009, identify state programs and projects that could benefit from the Recovery Act, develop a coordinated plan designed to maximize the impact of the Recovery Act, and implement guidelines and practices that provide transparency and accountability.

The Transform Missouri Initiative will be placed within the Office of Administration for administrative purposes. Operational Directors for the Initiative will be the Governor’s Director of Policy, the State Budget Director, and the Senior Counsel to the Governor for Budget & Finance. The Office of Administration will provide office space and administrative support for the Initiative.

The Initiative will be comprised of personnel from the following executive branch departments:

- Office of Administration
- Department of Agriculture
- Department of Corrections
- Department of Economic Development
- Department of Elementary and Secondary Education

- Department of Health and Senior Services
- Department of Insurance, Financial Institutions and Professional Registration
- Department of Labor and Industrial Relations
- Department of Mental Health
- Department of Natural Resources
- Department of Public Safety
- Department of Revenue
- Department of Social Services
- Department of Transportation

The Directors of each of the aforementioned executive branch departments will immediately assign to the Initiative at least one full-time employee who has an understanding of the programs and projects within their department that are or may be affected by the American Recovery and Reinvestment Act of 2009 and has knowledge and experience in procurement.

The Operational Directors may request additional employees be assigned to the Initiative from particular departments.

The Transform Missouri Initiative will expire on July 1, 2009, unless extended by executive order.



IN WITNESS WHEREOF, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Missouri, in the City of Jefferson, on this 20th day of February, 2009.


Jeremiah W. (Jay) Nixon
Governor

ATTEST:


Robin Carnahan
Secretary of State

**EXECUTIVE ORDER
09-13**

WHEREAS, the severe winter weather that began on January 26, 2009, created a condition of distress and hazards to the safety and welfare of the citizens of the State of Missouri beyond the capabilities of some local jurisdictions and other established agencies; and

WHEREAS, Executive Order 09-04 was issued on January 26, 2009, declaring a State of Emergency within the State of Missouri; and

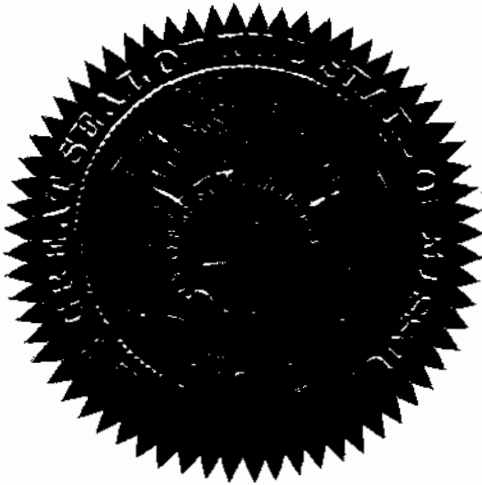
WHEREAS, Executive Order 09-07 was issued on January 30, 2009, authorizing the Acting Director of the Missouri Department of Natural Resources to waive or suspend temporarily the operation of statutory or administrative rules or regulations in order to expedite the cleanup and recovery process; and

WHEREAS, in response to Executive Order 09-07, the Acting Director of the Missouri Department of Natural Resources issued a waiver on January 30, 2009, suspending specific solid waste regulations to address wastes generated by the severe weather; and

WHEREAS, several communities in the state of Missouri continue to clear debris resulting from the severe weather; and

WHEREAS, Executive Order 09-04 expires on February 26, 2009, unless extended in whole or in part.

NOW THEREFORE, I, JEREMIAH W. (JAY) NIXON, Governor of the State of Missouri, by virtue of the authority vested in me by the Constitution and Laws of the State of Missouri, hereby extend the declaration of emergency contained in Executive Order 09-04 and the terms of Executive Order 09-07 through March 31, 2009, for the purpose of continuing the cleanup efforts in the affected Missouri communities.




IN WITNESS WHEREOF, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Missouri, in the City of Jefferson, on this 25th day of February, 2009.



Jeremiah W. (Jay) Nixon
Governor

ATTEST:



Robin Carnahan
Secretary of State

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 rulemaking 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 thirty (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 thirty (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 ninety (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 thirty (30) days from the date of publication of the new notice.

(A) Customer-generator systems **greater than** ten kilowatts (10 kW) *[or less]* shall carry no less than one hundred thousand dollars (\$100,000) of liability insurance that provides for coverage of all risk of liability for personal injuries (including death) and damage to property arising out of or caused by the operation of the net metering unit. Insurance may be in the form of an existing policy or an endorsement on an existing policy.

(B) Customer-generator systems *[greater than]* ten kilowatts (10 kW) *or less* shall *[carry no less than one million dollars (\$1,000,000) of]* **not be required to carry** liability insurance*].;* **however, any tariff or contract offered by a utility or cooperative to customer-generators shall contain language stating that absent clear and convincing evidence of fault on the part of the retail electric supplier, those retail electric suppliers cannot be held liable for any action or cause of action relating to any damages to property or person caused by the generation unit of a customer-generator or the interconnection thereof pursuant to section 386.890.11, RSMo Supp. 2008. Further, any tariff or contract offered by utilities or cooperatives to customer-generators shall state that customer-generators may have legal liabilities not covered under their existing insurance policy in the event the customer-generator's negligence or other wrongful conduct causes personal injury (including death), damage to property, or other actions and claims.**

Proposed Amendment Text Reminder:

Boldface text indicates new matter.

[Bracketed text indicates matter being deleted.]

Title 4—DEPARTMENT OF ECONOMIC DEVELOPMENT

Division 240—Public Service Commission Chapter 20—Electric Utilities

PROPOSED AMENDMENT

4 CSR 240-20.065 Net Metering. The department is amending section (4) and the Interconnection Application/Agreement for Net Metering Systems with Capacity of One Hundred Kilowatts (100 kW) or Less.

PURPOSE: This amendment removes the recent imposition of insurance requirements on customer-generator systems of ten kilowatts (10kW) or less and reduces the insurance requirements for such systems greater than ten kilowatts (10kW) to their former levels.

(4) Customer-Generator Liability Insurance Obligation.

**INTERCONNECTION APPLICATION/AGREEMENT FOR NET METERING
SYSTEMS WITH CAPACITY OF ONE HUNDRED
KILOWATTS (100 kW) OR LESS**

D. Additional Terms and Conditions

In addition to abiding by [Utility Name]'s other applicable rules and regulations, the Customer-Generator understands and agrees to the following specific terms and conditions:

2) Liability

Liability insurance is not required for Customer-Generators of ten kilowatts (10 kW) or less. For generators greater than ten kilowatts (10kW), the Customer-Generator agrees to carry no less than one hundred thousand dollars (\$100,000) of liability insurance that provides for coverage of all risk of liability for personal injuries (including death) and damage to property arising out of or caused by the operation of the Customer-Generator's System. Insurance may be in the form of an existing policy or an endorsement on an existing policy. **Customer-generators, including those whose systems are ten kilowatts (10 kW) or less, may have legal liabilities not covered under their existing insurance policy in the event the customer-generator's negligence or other wrongful conduct causes personal injury (including death), damage to property, or other actions and claims.**

AUTHORITY: section 386.250, RSMo 2000. Original rule filed March 11, 2003, effective Aug. 30, 2003. Amended: Filed June 17, 2008, effective Feb. 28, 2009. Amended: Filed Feb. 20, 2009.

PUBLIC COST: This proposed amendment will not cost state agencies or political subdivisions more than five hundred dollars (\$500) in the aggregate.

PRIVATE COST: This proposed amendment will not cost private entities more than five hundred dollars (\$500) in the aggregate.

NOTICE TO SUBMIT COMMENTS AND NOTICE OF PUBLIC HEARING: *Anyone may file comments in support of or in opposition to this proposed amendment with the Missouri Public Service Commission, Colleen M. Dale, Secretary of the Commission, PO Box 360, Jefferson City, MO 65102. To be considered, written comments must be received at the commission's offices on or before May 1, 2009, and should include a reference to Commission Case No. EX-2009-0267. If comments are submitted via a paper filing, an original and eight (8) copies of the comments are required. Comments may also be submitted via a filing using the commission's electronic filing and information system at <http://www.psc.mo.gov>. A public hearing regarding this proposed amendment is scheduled for May 1, 2009, at 2:00 pm in Room 305 of the Governor Office Building, 200 Madison Street, Jefferson City, Missouri. Interested persons may appear at this hearing to submit additional comments and/or testimony in support of or in opposition to this proposed amendment and may be asked to respond to commission questions. Any persons with special needs as addressed by the Americans with Disabilities Act should contact the Missouri Public Service Commission at least ten (10) days prior to the hearing at one (1) of the following numbers: Consumer Services Hotline 1-800-392-4211 or TDD Hotline 1-800-829-7541.*

**Title 6—DEPARTMENT OF HIGHER EDUCATION
Division 10—Commissioner of Higher Education
Chapter 2—Student Financial Assistance Program**

PROPOSED AMENDMENT

6 CSR 10-2.100 Public [Service] Safety Officer or Employee's Child Survivor Grant Program. The commissioner of higher education is amending the purpose and sections (1) through (6).

PURPOSE: This amendment updates statutory references, definitions, student eligibility requirements, the award policy, and institutional eligibility requirements and adds the information sharing policy.

PURPOSE: The public [service] safety officer or employee's child survivor grant program, established by section 173.260, RSMo, authorizes the Coordinating Board for Higher Education to provide educational benefits for eligible Missouri residents who are public safety officers who are permanently and totally disabled in the line of duty or eligible children or spouses of certain public safety officers and certain public employees killed or permanently and totally disabled in the line of duty to attend an approved Missouri college or university. This rule sets forth qualifications required of student applicants for grant assistance [and qualifications which approved colleges or universities must meet].

(1) Definitions.

(A) Academic year or the period of the grant is the period from [August] July 1 of any year through [July 31] June 30 of the following year.

(B) Applicant shall mean an eligible child, spouse, or public safety officer, as defined in this rule, who [applies to] has filed a complete and accurate application to receive a survivor grant as prescribed by the [coordinating board for a survivor grant] CBHE and who qualifies to receive such an award under section 173.260, RSMo.

(C) [Coordinating board or board] CBHE is the Coordinating Board for Higher Education created by section 173.005, RSMo.

(F) [Full-time student shall be an undergraduate student who is enrolled in and is carrying a sufficient number of credit hours or their equivalent (minimum twelve (12) credit hours) at an approved private or public Missouri institution to secure a degree or certificate.] Full-time student means a student who is enrolled in at least twelve (12) semester hours, eight (8) quarter hours, or the equivalent in another measurement system, but not less than the number sufficient to secure the certificate or degree toward which the student is working in no more

than the number of semesters or their equivalent normally required by the institution for the program in which the student is enrolled, provided, however, that an otherwise eligible student having a disability as defined by the Americans with Disabilities Act (42 U.S.C. 12101-12213) who, because of his or her disability, is unable to satisfy the statutory minimum requirements for full-time status under Title IV student aid programs shall be considered by the approved institution to be a full-time student and shall be considered to be making satisfactory academic degree progress, as defined in subsection (1)(N) of this rule, while carrying a minimum of six (6) credit hours or their equivalent at the approved institution.

(H) His, him, or he shall apply equally to the female as well as the male sex in this rule.

[(H)](I) Institution of postsecondary education or approved institution shall be any private or public institution located in Missouri that meets the requirements set forth in section 173.205/1102(2) or (3), RSMo.

[(I)](J) Line of duty shall mean any action of an employee directly connected to their employment with the Department of Transportation, or of a public safety officer, whose primary function is crime control or reduction, enforcement of the criminal law, or suppression of fires, and who is authorized or obligated by law, rule, regulation, or condition of employment or service to perform such function.

(K) MDHE means the Missouri Department of Higher Education created by section 173.005, RSMo.

[(J)](L) Permanent and total disability shall mean a disability which renders a person unable to engage in any gainful work.

[(K)](M) Public safety officer shall be any firefighter, police officer, capitol police officer, parole officer, probation officer, state correctional employee, water safety officer, park ranger, conservation officer, or highway patrolman employed by the state of Missouri or a political subdivision thereof who is killed or permanently and totally disabled in the line of duty.

[(L)](N) Satisfactory academic progress shall be determined by the approved institution's policies as applied to other students at the approved institution receiving assistance under Title IV financial aid programs included in the Higher Education Act of 1965.

[(M)](O) Similar program funds shall be need-based funds an applicant receives under any federal or state grant aid programs.

[(N)](P) Spouse shall mean the husband, wife, widow, or widower of a public safety officer or employee at the time of death or permanent and total disability of such public safety officer or employee.

[(O)] Standard admissions policies shall be policies approved and published by the approved institution to admit students having a certificate of graduation or the equivalent of this certificate and to allow the early admission of superior high school students.]

[(P)](Q) Survivor grant or grant shall mean the public safety officer or employee survivor grant as established by section 173.260, RSMo.

[(Q)](R) Tuition or incidental fee shall be the amount charged for nondesignated and unrestricted fees by an institution of postsecondary education for an applicant to attend full-time at that institution as a resident of the state of Missouri.

(2) Responsibilities of Institutions of Postsecondary Education. Institutions participating in the Public Safety Officer or Employee Survivor Grant program must meet the requirements set forth in 6 CSR 10-2.140, Institutional Eligibility for Student Participation.

[(2)](3) [Applicant Qualifications and Responsibilities] Eligibility Policy.

(A) To be eligible for grant assistance under the survivor grant program, an applicant must meet the following conditions:

1. Be a citizen or permanent resident of the United States;

2. Be a resident of Missouri;

3. Be an eligible child or spouse of a public safety officer or employee who was killed or permanently and totally disabled in the line of duty; or be a public safety officer who was permanently and totally disabled in the line of duty;

4. Be enrolled or accepted for enrollment as a full-time undergraduate student in a course of study leading to a certificate or an associate or baccalaureate degree at an approved institution for the period of the grant;

5. Maintain satisfactory academic progress in his/her course of study, according to standards determined by the approved institution; and

6. Complete an application for grant assistance according to the provisions of this rule.

(B) No award shall be made under section 173.260, RSMo to any applicant who is enrolled or who intends to use the award to enroll in a course of study leading to a degree in theology or divinity.

(C) Grant assistance shall be allotted for one (1) academic year, but an applicant shall be eligible for renewed assistance until s/he has obtained a baccalaureate degree or, only in the case of an applicant who is an eligible child, has reached age twenty-four (24) years, whichever occurs first, except that the applicant may receive such grant assistance through the completion of the semester or similar grading period in which the eligible child reaches his/her twenty-fourth year.

(D) An eligible child of a public safety officer or employee, spouse of a public safety officer, or public safety officer shall cease to be eligible for a grant pursuant to section 173.260, RSMo, when the public safety officer or employee is no longer permanently and totally disabled.

[(3) Responsibilities of Institutions of Postsecondary Education.

(A) Approved institutions shall meet the following requirements:

1. Comply with the provisions of section 173.205(2) or (3), RSMo;

2. Admit students based on the approved institution's standard admissions policies;

3. Establish fair and equitable refund policies covering tuition, fees, and where paid to the school, room and board charges. The institution's refund policy shall be the same policy which is utilized by the institution for refunding funds under federal Title IV financial aid programs included in the Higher Education Act of 1965;

4. Sign the agreement for institution of postsecondary education participation in the survivor grant program as provided by the coordinating board; and

5. Complete the institution's section of the survivor grant program application to verify the applicant's eligibility for the grant program and send to the coordinating board for approval for the current academic year.

(B) When the approved institution receives the survivor grant program funds for the awards made by the coordinating board, the approved institution shall—

1. Determine if the applicant is enrolled full-time and making satisfactory academic progress in his/her course of study according to standards determined by the approved institution;

2. Deliver the grant program funds to the applicant in the amount awarded to that applicant by the coordinating board, or the approved institution must obtain the applicant's endorsement to retain the portion of the award which the applicant owes for tuition or incidental fees for the current academic year to that particular approved institution;

3. Notify the coordinating board if, prior to disbursement, the applicant to whom an award has been made has not enrolled full-time, or has indicated that s/he does not

plan to enroll full-time, and return the applicant's check within thirty (30) days of learning these facts;

4. Be responsible for the repayment of survivor grant funds to the coordinating board if the grant funds were delivered erroneously to the applicant; and

5. Determine and calculate the amount of refunds to the coordinating board based on the refund formula of the approved institution for applicants who withdraw during the institution's refund period.

(C) Repayment under paragraph (3)(B)4. of this rule shall be necessary when the—

1. Approved institution delivers funds to an applicant not eligible under the survivor grant program;

2. Award was based on erroneous, improper or misleading information provided by the approved institution to the coordinating board; or

3. Approved institution delivers the grant funds to a person other than the one to whom the coordinating board has directed the funds be delivered.]

(4) Application and Evaluation Policy.

(A) The [coordinating board] CBHE annually shall prescribe the form of, and the time and method of filing, applications under the survivor grant program.

(B) An application for grant assistance under the survivor grant program shall be made annually by the applicant on the form prescribed by the [coordinating board] CBHE.

(C) Completed applications must be received by the [coordinating board] MDHE to be approved for grant awards.

(5) [Survivor Grant Program Award Limits and Criteria] Award Policy.

(A) The maximum survivor grant program award amount for each applicant per academic year shall be the [least] lesser of the actual tuition and incidental fees charged at [an] the approved institution (maximum twelve (12) credit hours) where the applicant is enrolled or accepted for full-time enrollment; or the amount of tuition and incidental fees charged a Missouri undergraduate resident enrolled full-time (maximum twelve (12) credit hours) in the same class level (freshman, sophomore, junior, senior) and in the same academic major of the applicant at the University of Missouri.

(D) [The award amount for any given academic year will be disbursed to the approved institution, equally, according to the number of semesters at that particular approved institution and awarded for each semester of enrollment.] **Award amounts will be calculated and issued for each semester of enrollment in a given academic year and will be disbursed to the approved institution.**

(F) An applicant may change his/[her] approved institution choice prior to the beginning of the first day of classes and may transfer between approved institutions during the academic year. [The deadline for those actions is August 1 for the fall semester and January 1 for the winter or spring semester.] **A new application is required to transfer the award.** Failure to notify the [coordinating board] MDHE by these dates of the change may result in loss of the award.

(G) Award notifications will be sent to applicants by the [coordinating board] MDHE once applications have been approved and the awards have been determined. Notification of awards also will be sent to the student financial aid office at the approved institution in which the applicant plans to or has enrolled.

(H) The applicant's award will be sent to the approved institution to be endorsed by the applicant [in accordance with the requirements of subsection (3)(B) of this rule]. **The institution shall retain the portion of the award that the student owes for expenses and promptly give the applicant any remaining funds.**

(I) **Should an applicant withdraw prior to the end of the approved institution's refund period for the period of the award, then a refund shall be calculated and made to the**

coordinating board by the approved institution within forty (40) days from the day on which the applicant withdraws. The amount of the refund will be calculated by the approved institution based on the refund formula of that institution in accordance with paragraph (3)(A)3. of this rule.]

(6) Information Sharing Policy. All information on an individual's survivor grant application will be shared with the financial aid office of the institution to which the individual has applied or is attending to permit verification of data submitted. Information may be shared with federal financial aid offices if necessary to verify data furnished to the state or federal governments as provided for in the Privacy Act of 1974, 5 U.S.C. 552a.

AUTHORITY: section 173.260, RSMo [Supp. 1998] 2000. Original rule filed April 29, 1988, effective July 28, 1988. Amended: Filed May 27, 1999, effective Jan. 30, 2000. Amended: Filed Feb. 20, 2009.

PUBLIC COST: This proposed amendment will not cost state agencies or political subdivisions more than five hundred dollars (\$500) in the aggregate.

PRIVATE COST: This proposed amendment will not cost private entities more than five hundred dollars (\$500) in the aggregate.

NOTICE TO SUBMIT COMMENTS: Anyone may file a statement in support of or in opposition to this proposed amendment with the Missouri Department of Higher Education, Financial Assistance, Outreach, and Proprietary School Certification, Kelli Reed, Student Assistance Associate, 3515 Amazonas Drive, Jefferson City, MO 65109. To be considered, comments must be received within thirty (30) days after publication of this notice in the Missouri Register. No public hearing is scheduled.

Title 6—DEPARTMENT OF HIGHER EDUCATION Division 10—Commissioner of Higher Education Chapter 2—Student Financial Assistance Program

PROPOSED AMENDMENT

6 CSR 10-2.120 Competitiveness Scholarship Program. The commissioner of higher education is amending sections (1) through (6).

PURPOSE: This amendment updates statutory references, definitions, student eligibility requirements, the award policy, and institutional eligibility requirements and adds the information sharing policy.

(1) Definitions.

(A) Academic year or period of the scholarship is the period from [August] July 1 of any year through [July 31] June 30 of the following year.

(B) Applicant [is anyone] means a student who applies to the [coordinating board] MDHE for a scholarship under the competitiveness scholarship program as prescribed by the CBHE and who meets the criteria to receive such an award under section 173.262, RSMo, and this administrative rule.

(C) Approved institution [shall be] means any [private or public] institution located in Missouri that meets the requirements set forth in section 173.[205/1102(2) or (3), RSMo, and that has been approved under 6 CSR 10-2.140.

(D) [Competitiveness scholarship assistance or award] Award amount shall be an amount of money paid by Missouri to a qualified applicant pursuant to the provisions of this rule.

(F) [Coordinating board or board is] CBHE means the Coordinating Board for Higher Education created by section 173.005, RSMo.

(G) Expenses shall be undergraduate tuition or incidental fees for the current academic year.

[(G)](H) Financial need shall be the difference between the total financial resources available to an applicant and the applicant's total cost of attendance, including tuition, fees, room and board, books and supplies, personal expenses, and transportation while attending part-time at an approved institution.

[(H)](I) Financial resources shall be the amount of financial assistance (scholarship, grant, work, *[loan]*) awarded to the applicant by the approved institution and the amount of the applicant's expected family contribution as *[determined by any multiple data entry (MDE) processor approved]* calculated annually by the United States Department of Education as a result of an official federal need analysis based on the student's federal need-based application form.

(J) His, him, or he shall apply equally to the female as well as the male sex where applicable in this rule.

[(I)](K) Initial recipient shall be any applicant who meets the eligibility requirements and is awarded and received a competitiveness scholarship for the first time.

(L) MDHE means the Missouri Department of Higher Education created by section 173.005, RSMo.

[(J)](M) Part-time student shall be any undergraduate student who is enrolled less than full-time but at least half-time in a degree program as defined by the approved private or public Missouri institution.

[(K)](N) Renewal recipient shall be any applicant who received a competitiveness scholarship as an initial recipient under the competitiveness scholarship program and meets the eligibility requirements under the provisions of this rule and requirements as defined by the approved institution, *[,]* and is awarded and received a renewable competitiveness scholarship under the competitiveness scholarship program as a second-year, third-year, or fourth-year undergraduate student at an approved institution in Missouri.

[(L)](O) Resident of Missouri is any person who meets the requirements for resident status for Missouri as set forth by the *[coordinating board]* CBHE in 6 CSR 10-3.010, the residency rule for higher education.

[(M)](P) *[Satisfactory academic degree progress or satisfactory]* Satisfactory academic progress shall be a cumulative grade point average (CGPA) of at least two and one-half (2.5) on a four-point (4.0) scale or the equivalent on another scale and, with the exception of grade point average, as otherwise determined by the approved institution's policies as applied to other students at the approved institution receiving assistance under Title IV financial aid programs included in the Higher Education Act of 1965. Calculation of CGPA shall be based on the approved institution's policies as applied to other students in similar circumstances.

[(N)] Standard admissions policies shall be policies approved and published by the approved institution to admit part-time students and students having a certificate of graduation from high school or the equivalent of that certificate.

[(O)](Q) Undergraduate student shall be any student who has not obtained a first baccalaureate degree.

(2) [Student Applicant Qualifications and Responsibilities] Basic Eligibility Policy.

(A) To be eligible for an initial or renewed *[scholarship]* award under the competitiveness scholarship program, an applicant must—

1. Be a citizen or permanent resident of the United States;
2. Be a resident of Missouri;
3. Be enrolled or accepted for enrollment as a part-time undergraduate student at an approved institution for the period of the scholarship;

[4. Maintain satisfactory academic progress in a course of study, according to standards determined by the approved institution;]

[5.]4. Complete an application for scholarship assistance according to the provisions of this rule;

[6.]5. Demonstrate financial need based on a positive result from subtracting financial resources from the cost of attendance;

[7.]6. Be eighteen (18) years of age or older at the time the application is submitted to the *[coordinating board]* MDHE;

[8.]7. Be employed and compensated for twenty (20) hours or more per week; and

[9.]8. Not be employed under the federal Title IV College Work-Study Program.

(B) To be eligible for a renewal scholarship under the competitiveness scholarship program, an applicant must meet the requirements in subsection (2)(A) of this administrative rule and maintain satisfactory academic progress in a course of study.

[(B)](C) No award shall be made under section 173.262, RSMo, to any applicant who is enrolled or who intends to use the award to enroll in a course of study leading to a degree in theology or divinity.

[(C)](D) Scholarship assistance shall be allotted for one (1) academic year, but an applicant shall be eligible for renewed assistance until *[s/]he* has obtained a baccalaureate degree or completed one hundred fifty (150) semester credit hours.

(3) Responsibilities of [Approved] Institutions of Postsecondary Education. Institutions participating in the competitiveness scholarship program must meet the requirements set forth in 6 CSR 10-2.140, Institutional Eligibility for Student Participation.

[(A)] Approved institutions shall—

1. Comply with the provisions included in section 172.205(2) or (3) RSMo;

2. Admit students based on the approved institution's standard admissions policies;

3. Submit a copy of the institution's policy on satisfactory academic degree progress to the coordinating board;

4. Establish fair and equitable refund policies covering tuition, fees and, where paid to the school, room and board charges. That refund policy shall be the same policy which is utilized by the approved institution for refunding all federal Title IV financial aid programs included in the Higher Education Act of 1965;

5. Sign the agreement for educational institution participation in the competitiveness scholarship program as provided by the coordinating board;

6. Systematically organize all student records (student financial aid, registrar, business office) pertaining to student recipients under the scholarship program to be made readily available for review upon request by the coordinating board;

7. Complete the institution's section of the competitiveness scholarship program application to verify the student's eligibility for the scholarship program and submit it to the coordinating board by the annual deadline published by the coordinating board for the current academic year; and

8. Determine if the student applicant has demonstrated financial need.

(B) When the approved institution receives the competitiveness scholarship program funds for the awards made by the coordinating board, the approved institution must—

1. Determine if the applicant is enrolled part-time and is making satisfactory academic progress in a course of study according to standards determined by the approved institution;

2. Determine if the applicant is employed twenty (20) hours or more per week at the time the award is delivered to the applicant;

3. Deliver the scholarship program funds to the applicant in the amount awarded to that applicant by the coordinating board and obtain the applicant's endorsement, retaining the portion of the award which the applicant owes for undergraduate tuition or incidental fees for the current academic year to that particular approved institution;

4. Notify the coordinating board and return the applicant's check within thirty (30) days of learning, prior to disbursement, that the applicant to whom an award has been made has not enrolled part-time, has indicated that s/he does not plan to enroll part-time or does not meet the other student eligibility requirements;

5. Be responsible for the repayment of any competitiveness scholarship funds sent to the approved institution by the coordinating board if the scholarship funds were delivered erroneously; and

6. Determine and calculate the amount of refunds to the coordinating board based on the refund formula of the approved institution for applicants who withdraw during the institution's refund period. The coordinating board may refuse to award scholarships to applicants who attend approved institutions which fail to make timely refunds to the coordinating board.

(C) Repayment under paragraph (3)(B)5. of this rule shall be necessary when the—

1. Approved institution delivers funds to an applicant not eligible under the competitiveness scholarship program;

2. Award was based on erroneous, improper or misleading information provided by the approved institution to the coordinating board; or

3. Approved institution delivers the scholarship funds to a person other than the one to whom the coordinating board has directed the funds be delivered.]

(4) Application and Evaluation Policy.

(A) The [coordinating board] CBHE annually shall prescribe the form of, and the time and method of filing, applications for participation in the competitiveness scholarship program.

(B) An application for [scholarship assistance] an award under the competitiveness scholarship program shall be made annually by the applicant upon the form prescribed by the [coordinating board] CBHE.

(C) Completed applications must be received by the [coordinating board] MDHE to be approved for scholarship awards.

(D) The deadline for receiving completed competitiveness scholarship applications will be published annually by the [coordinating board] MDHE for each academic year. Completed applications must be received by the [coordinating board] MDHE on or before the published deadline to be considered on time and to have priority consideration. Incomplete applications received by the [coordinating board] MDHE will not be processed.

(E) Completed competitiveness scholarship applications received after the annual deadline published by the [coordinating board] MDHE will be awarded provided program funds are available, based on a review by the [coordinating board] MDHE.

(5) [Competitiveness Scholarship Program Award Limits and Criteria] Award Policy.

(A) Within the limits of the funds appropriated and made available, the maximum [competitiveness scholarship program] award amount for each applicant per academic year shall be the [least] lesser of the actual undergraduate tuition charged at an approved institution where the applicant is enrolled or accepted for part-time enrollment or the amount of tuition charged a Missouri undergraduate resident enrolled part-time in the same class level (freshman, sophomore, junior, senior) and in the same academic major of the applicant at the University of Missouri-Columbia.

(B) For part-time students enrolled in courses totaling six (6), seven (7), or eight (8) semester credit hours, or the equivalent, the award amount shall be calculated based on six (6) semester credit hours. For part-time students enrolled in courses totaling nine (9), ten (10), or eleven (11) semester credit hours, or the equivalent, the award amount shall be calculated based on nine (9) semester credit hours.

[(C) Financial need shall be used by the approved institution in determining applicant eligibility for awards under the competitiveness scholarship program.]

[(D)](C) The first year of the competitiveness scholarship program funds shall be awarded only to applicants as initial recipients.

[(E)](D) Applicants who qualify as initial recipients under the provisions of this rule in the second and each subsequent year of the program will be awarded based on the availability of program funds.

[(F)](E) If sufficient program funds are unavailable to award to initial recipients, the awards will be made based on the earliest date the completed applications are received by the [coordinating board] MDHE until all funds have been expended.

[(G)](F) During the second and each subsequent year in which awards are made under the competitiveness scholarship program, the renewal recipients shall have priority in the awarding of program funds. If sufficient program funds are unavailable to award all eligible renewal recipients, priority for program funds shall be awarded based on the earliest date the completed application is received by the [coordinating board] MDHE in the following order: fifth-year, fourth-year, third-year, and second-year students as defined by the approved institution.

[(H) An applicant receiving an award under the competitiveness scholarship program shall have made satisfactory academic progress as defined by the approved institution and meet all other eligibility criteria according to the provisions of this rule to be eligible for a subsequent award under the competitiveness scholarship program.]

[(I)](G) [The award] Award amounts [for any given academic year] will be [disbursed to the approved institution, equally, according to the number of semesters at the approved institution and awarded] calculated and issued for each semester of part-time enrollment in a given academic year and will be disbursed to the approved institution.

[(J)](H) Awards will not be made for periods of enrollment during the summer term(s).

[(K)](I) An applicant's approved institution choice may be changed [prior to the beginning of the first day of classes] and the applicant may transfer between approved institutions during the academic year by the deadline established by the MDHE. [The deadline for these actions is August 1 for the fall semester and January 1 for the winter or spring semester.] Failure to notify the [coordinating board] MDHE by the prescribed dates of this action may result in loss of the award.

[(L) Award notifications will be sent to applicants by the coordinating board after the awards have been determined. Notification of awards also will be sent to the student financial aid office at the approved institution where the applicant plans to or has enrolled.]

[(M)](J) The applicant's award amount will be sent to the approved institution to be endorsed by the applicant [in accordance with the requirements of subsection (3)(B) of this rule]. The institution shall retain the portion of the award that the student owes for expenses and promptly give the applicant any remaining funds.

[(N) Should an applicant withdraw prior to the end of the approved institution's refund period during the period of the scholarship, then a refund shall be calculated and made to the coordinating board by the approved institution within forty (40) days from the day on which the applicant withdraws. The amount of the refund will be calculated by the approved institution based on the refund formula of that institution.]

(6) Information Sharing Policy. All information on an individual's competitiveness scholarship program application will be shared with the financial aid office of the institution to which the individual has applied or is attending to permit verification of data submitted. Information may be shared with federal financial aid

offices if necessary to verify data furnished by the state or federal governments as provided for in the Privacy Act of 1974, 5 U.S.C. section 552a.

AUTHORITY: section 173.262, RSMo 2000. Original rule filed May 24, 1990, effective Nov. 30, 1990. Amended: Filed Jan. 12, 2007, effective July 30, 2007. Amended: Filed Feb. 20, 2009.

PUBLIC COST: This proposed amendment will not cost state agencies or political subdivisions more than five hundred dollars (\$500) in the aggregate.

PRIVATE COST: This proposed amendment will not cost private entities more than five hundred dollars (\$500) in the aggregate.

NOTICE TO SUBMIT COMMENTS: Anyone may file a statement in support of or in opposition to this proposed amendment with the Missouri Department of Higher Education, Financial Assistance, Outreach, and Proprietary School Certification, Kelli Reed, Student Assistance Associate, 3515 Amazonas Drive, Jefferson City, MO 65109. To be considered, comments must be received within thirty (30) days after publication of this notice in the Missouri Register. No public hearing is scheduled.

**Title 6—DEPARTMENT OF HIGHER EDUCATION
Division 10—Commissioner of Higher Education
Chapter 2—Student Financial Assistance Program**

PROPOSED AMENDMENT

6 CSR 10-2.130 Vietnam Veteran's Survivors Grant Program.
The commissioner of higher education is amending the purpose and sections (1) through (6).

PURPOSE: This amendment updates statutory references, definitions, student eligibility requirements, the award policy, and institutional eligibility requirements and adds the information sharing policy.

PURPOSE: The Vietnam Veteran's Survivors Grant Program, established by section 173.[235]236, RSMo, authorizes the Coordinating Board for Higher Education to provide tuition grants for eligible undergraduate students, who are survivors of Vietnam veterans[, and] whose deaths [was contributed] were attributed to or [was] were caused by exposure to toxic chemicals during the Vietnam conflict, to attend an approved Missouri postsecondary institution. This administrative rule sets forth eligibility requirements of survivors for tuition grant assistance [and the responsibilities that approved postsecondary institution must meet for the administration of the program].

(1) Definitions.

(B) Applicant shall mean an eligible survivor who has filed a complete and accurate application to receive grant assistance as prescribed by the CBHE and who qualifies to receive a grant award under section 173.236, RSMo.

[(B)](C) [Coordinating board or board] CBHE is the Coordinating Board for Higher Education created by section 173.005, RSMo.

[(C)](D) Eligible survivor shall be any child or spouse of a Vietnam veteran as defined in section 173.[235.1(4)]236, RSMo.

[(D)] Full-time student shall be defined by the approved institution as an undergraduate student who is enrolled in and is carrying sufficient number of credit hours or their equivalent (minimum twelve (12) credit hours) at an approved private or public Missouri institution to secure a degree or certificate.]

(E) Full-time student means a student who is enrolled in at least twelve (12) semester hours, eight (8) quarter hours, or the equivalent in another measurement system, but not less than the respective number sufficient to secure the certificate or degree toward which the student is working in no more than the number of semesters or their equivalent normally required by the institution for the program in which the student is enrolled, provided, however, that an otherwise eligible student having a disability as defined by the Americans with Disabilities Act (42 U.S.C. 12101-12213) who, because of his disability, is unable to satisfy the statutory minimum requirements for full-time status under Title IV student aid programs shall be considered by the approved institution to be a full-time student and shall be considered to be making satisfactory academic degree progress, as defined in subsection (1)(M) of this rule, while carrying a minimum of six (6) credit hours or their equivalent at the approved institution.

[(E)](F) Grant assistance, [or] award, or funds shall be an amount of money paid by [Missouri] the MDHE to an eligible survivor pursuant to the provisions of this rule.

(G) His, him, or he shall apply equally to the female as well as the male sex in this rule.

[(F)](H) Initial recipient shall be any survivor who applies for [a tuition] grant assistance and meets the eligibility requirements in accordance with the provisions of this rule and is awarded and receives a tuition grant under the grant program as a first-time recipient.

[(G)](I) Institution of postsecondary education or approved institution shall be any private or public institution located in Missouri that meets the requirements set forth in subdivision 173.[205]1102(2) or (3), RSMo.

(J) MDHE means the Missouri Department of Higher Education created by section 173.005, RSMo.

[(H)](K) Renewal recipient shall be any survivor who applies for a tuition grant, received a tuition grant as an initial recipient, and meets the eligibility requirements in accordance with the provisions of this rule and the requirements as defined by the approved institution and is awarded [a] renewable [tuition] grant assistance under the grant program.

[(I)](L) Resident of Missouri is any veteran who meets the requirements for resident status for Missouri set forth by the [coordinating board] CBHE in 6 CSR 10-3.010.

[(J)](M) Satisfactory [academic degree progress or satisfactory] academic progress shall be determined by the approved institution's policies as applied to other students at the approved institution receiving assistance under Title IV financial aid programs included in the Higher Education Act of 1965.

[(K)](N) Similar funds shall be any other state or federal student financial aid funds that are specifically designated for survivors of veterans.

[(L)] Standard admissions policies shall be policies approved and published by the approved institution to admit special students and students having a certificate of graduation.]

[(M)](O) Toxic chemicals shall be any chemical determined by the veteran's administration medical authority to have contributed to or [was the cause of] caused the death of a Vietnam veteran.

[(N)](P) Tuition or incidental fee shall be the amount charged by an institution of postsecondary education for attendance at the institution by a student as a resident of this state.

[(O)](Q) Tuition grant or grant program shall mean the Vietnam Veteran's Survivors Grant Program as established by section 173.[235]236, RSMo.

[(P)](R) Vietnam veteran shall be any person who meets the requirements as established by section 173.[235]236.1(6)(a)-(c), RSMo.

(2) [Eligible Survivor Qualifications and Responsibilities] Eligibility Policy.

(A) To be eligible for grant assistance under the tuition grant program, an eligible survivor must meet the following conditions:

1. Be a citizen or permanent resident of the United States;
2. Be a child or spouse of a Vietnam veteran whose death was *[contributed]* attributed to or caused by exposure to toxic chemicals during the Vietnam conflict;
3. Be enrolled or accepted for enrollment as a full-time undergraduate student in a course of study leading to a certificate, or an associate or baccalaureate degree at an approved institution for the period of the grant;
4. Maintain satisfactory academic progress in his/*her* course of study, according to standards determined by the approved institution;
5. Provide *[a qualified medical]* certification by a **Missouri state veterans service officer, upon certification from a** Veteran's Administration medical authority, *[to verify]* that the exposure to toxic chemicals contributed to or was the cause of death of the veteran; and
6. Complete an application for tuition grant assistance on forms provided and prescribed by the *[coordinating board]* **CBHE**.

(B) Grant assistance shall be allotted for one (1) academic year, but an applicant shall be eligible for renewed assistance until *[s/he]* the earliest of the following occurs:

1. **He** has obtained a baccalaureate degree *[or]*;
2. **He has** completed one hundred fifty (150) semester credit hours;
3. **He has received grant assistance for**, *provided the grant assistance shall not exceed* a total of ten (10) semesters or their equivalents;
4. **In the case of an applicant who is an eligible child, he has reached age twenty-five (25), except that the applicant may receive such grant assistance through the completion of the semester or similar grading period in which he reaches his twenty-fifth year; or**
5. **In the case of an applicant who is an eligible spouse survivor, the fifth anniversary after the veteran's death, except that the applicant may receive such grant assistance through the completion of the semester or similar grading period in which the anniversary occurs.**

(3) Responsibilities of Institutions of Postsecondary Education. **Institutions participating in the grant must meet the requirements set forth in 6 CSR 10-2.140, Institutional Eligibility for Student Participation.**

[(A) Approved institutions shall meet the following requirements:

1. *Admit students based on the approved institution's standard admissions policies;*
2. *Establish fair and equitable refund policies covering tuition, fees or other charges. That refund policy shall be the same policy which is utilized by the approved institution for refunding all federal Title IV financial aid programs included in the Higher Education Act of 1965; and*
3. *Complete the institution's section of the tuition grant program application to verify the applicant's eligibility for the grant program and send it to the coordinating board for approval for the current academic year.*

(B) When the approved institution receives the tuition grant program funds for the grants made by the coordinating board, the approved institution shall—

1. *Determine if the student is enrolled full-time and making satisfactory academic progress in his/her course of study according to standards determined by the approved institution;*
2. *Deliver the tuition grant program funds to the eligible survivor in the amount awarded to that survivor by the coordinating board, or the approved institution must obtain the survivor's endorsement to retain the portion of the grant*

which the survivor owes for tuition or incidental fees for the current academic year to that particular approved institution;

3. *Notify the coordinating board and return the student's check within thirty (30) days of learning that prior to disbursement, the student to whom an award has been made has not enrolled full-time, has indicated that s/he does not plan to enroll full-time, or does not meet the other student eligibility requirements;*

4. *Be responsible for the repayment of tuition grant funds to the coordinating board if the grant funds were delivered erroneously to the student; and*

5. *Determine and calculate the amount of refunds to the coordinating board based on the refund formula of the approved institution for students who withdraw during the institution's refund period. The coordinating board may refuse to award grants to applicants who attend approved institutions which fail to make timely refunds to the coordinating board.*

(C) Repayment by the institution under paragraph (3)(B)4. of this rule shall be necessary when—

1. *The approved institution delivers funds to a student not eligible under the tuition grant program;*
2. *The award was based on erroneous, improper or misleading information provided by the approved institution to the coordinating board; or*
3. *The approved institution delivers the grant funds to a person other than the one to whom the coordinating board has directed the funds be delivered.]*

(4) Application and Evaluation Policy.

(A) An application for grant assistance under the tuition grant program shall be made annually by the eligible survivor on the form prescribed by the *[coordinating board]* **CBHE**.

(B) Completed tuition grant applications must be received by the *[coordinating board]* **MDHE** on or before the application deadline that is established annually in the application materials by the *[coordinating board]* **CBHE** to be considered for tuition grants.

(C) Completed tuition grant applications received after the annual deadline established by the *[coordinating board]* **CBHE** will be awarded provided program funds are available, based on a review by the *[coordinating board]* **MDHE**.

(5) *[Tuition Grant Program Award Limits and Criteria]* Award Policy.

(A) The maximum tuition grant amount for each survivor per academic year shall be the *[least]* lesser of the actual tuition charged at an approved institution where the eligible survivor is enrolled or accepted for full-time enrollment; or the average amount of tuition charged a Missouri undergraduate resident enrolled full-time in the same class level (freshman, sophomore, junior, senior) and in the same academic major of the eligible survivor at the institutions identified in section 174.020, RSMo.

(B) The total eligible survivor's tuition grant and similar program funds the survivor is eligible for and receives shall not exceed the total cost of tuition charged by the approved institution for full-time enrollment.

(C) An eligible survivor receiving a grant under the tuition grant program shall have made satisfactory academic progress as defined by the approved institution in order to be eligible for a subsequent award under the tuition grant program.

(D) *[The grant amount for any given academic year will be disbursed to the approved institution equally according to the number of semesters at that particular approved institution and awarded for each semester of enrollment.]* Award amounts will be calculated and issued for each semester of enrollment in a given academic year and will be disbursed to the approved institution.

(E) Tuition grants will not be awarded for periods of enrollment during the summer term(s).

(F) Within the amounts appropriated for tuition grant awards, the [coordinating board] CBHE shall award up to twelve (12) grants annually to eligible survivors to attend an approved institution.

(G) Eligible renewal recipients shall have priority in the awarding of tuition grants. If sufficient grant funds are unavailable to award all eligible renewal recipients, grant funds shall be awarded in the following order: fifth-, fourth-, third-, and second-year students as defined by the approved institution.

(H) Eligible survivors who qualify as initial recipients under the provisions of this rule each year of the grant program shall be awarded based on the availability of grant funds.

(I) If sufficient tuition grant funds are unavailable to award to initial recipients, tuition grants will be awarded based on the earliest date the completed grant applications are received by the [coordinating board] CBHE until all grant funds have been expended.

(J) Eligible survivors who apply for a tuition grant but are not awarded a grant due to insufficient grant funds shall be put on an eligibility waiting list. The eligibility status of these eligible survivors will be extended to the following academic year and will be considered for a tuition grant in accordance with the criteria in subsections (5)(F)–(I) of this rule.

(K) A survivor who changes his/[her] approved institution choice prior to the beginning of the first day of classes or who transfers from one (1) approved institution to another must notify the [board] CBHE. Failure to notify the [coordinating board] CBHE may result in loss of the award.

(L) Award notifications will be sent to the eligible survivors by the [coordinating board] CBHE once the applications have been approved and the grants have been determined. Notification of grants will also be sent to the student financial aid office at the approved institution where the student plans to or has enrolled.

(M) The survivor's grant will be sent to the approved institution to be endorsed by the student [in accordance with the requirements of subsection (3)(B) of this rule]. **The institution shall retain the portion of the award that the student owes for expenses and promptly give the applicant any remaining funds.**

[*(N) Within forty (40) days from the date on which the survivor withdraws, the approved institution shall calculate and make a refund to the coordinating board based on the refund formula established by that institution in accordance with paragraph (3)(A)2. of this rule.*

[*(O) Any eligible survivor is subject to the age limitation found in section 173.235.10., RSMo.]*

(6) Information Sharing Policy. All information on an individual's survivor grant application will be shared with the financial aid office of the institution to which the individual has applied or is attending to permit verification of data submitted. Information may be shared with federal financial aid offices if necessary to verify data furnished by the state or federal governments as provided for in the Privacy Act of 1974, 5 U.S.C. section 552a.

AUTHORITY: section 173.236, RSMo [1994] 2000. Original rule filed April 5, 1993, effective Sept. 9, 1993. Amended: Filed Feb. 20, 2009.

PUBLIC COST: This proposed amendment will not cost state agencies or political subdivisions more than five hundred dollars (\$500) in the aggregate.

PRIVATE COST: This proposed amendment will not cost private entities more than five hundred dollars (\$500) in the aggregate.

NOTICE TO SUBMIT COMMENTS: Anyone may file a statement in support of or in opposition to this proposed amendment with the Missouri Department of Higher Education, Financial Assistance, Outreach, and Proprietary School Certification, Kelli Reed, Student

Assistance Associate, 3515 Amazonas Drive, Jefferson City, MO 65109. To be considered, comments must be received within thirty (30) days after publication of this notice in the Missouri Register. No public hearing is scheduled.

**Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 60—[Public] Safe Drinking Water [Program]
Commission
Chapter 2—Definitions**

PROPOSED AMENDMENT

10 CSR 60-2.015 Definitions. The commission is amending subsections (2)(B), (C), (D), (F), (G), (L), (M), (P), (T), (U), and (W).

PURPOSE: This amendment adopts new definitions required by the Long-Term 2 Enhanced Surface Water Treatment Rule published in 71 FR 653 (January 5, 2006) and Stage 2 Disinfectants/Disinfection By-Products Rule published in 71 FR 387 (January 4, 2006). The definitions are adopted from the federal rules without variance.

(2) Definitions.

(B) Terms beginning with the letter 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. 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.

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.

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.

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.

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.

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.

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 pump-injected water supply or other well(s).

[5.]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.

[6.]8. Beta particle. A particle, identical with an electron, emitted from the nucleus of a radioactive element.

[7.]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.

(C) Terms beginning with the letter 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.

[1.]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.]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.

[3.]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.

[4.]5. Chloramines. All amino or imino groups in which the hydrogen has been replaced totally or in part by chlorine.

[5.]6. Class I backflow hazard. See backflow hazard.

[6.]7. Class II backflow hazard. See backflow hazard.

[7.]8. Coagulation. A process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

[8.]9. Combined chlorine residual. That portion of the total chlorine residual which is not free available chlorine.

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.

[9.]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.

[10.]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.

[11.]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.

[12.]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.

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.

[13.]16. Consolidated formations. Earth material which has been created by geological processes, cemented or compacted into a coherent or firm mass.

[14.]17. Containment. Protection of the public water system by installation of a department-approved backflow prevention assembly or air-gap separation at the user connection from the main service line(s).

[15.]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.

[16.]19. Conventional filtration treatment. A series of treatment processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

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.

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.

[17.]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.

[18.]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.

[19.]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 × T)). (See also residual disinfectant concentration and disinfectant contact time.)

[20.]23. Customer. Any person who receives water from a public water system.

[21.]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.

[22.]25. Customer water system. All piping, fixtures, and appurtenances, including auxiliary water systems, used by a customer to convey water on his/her premises.

(D) Terms beginning with the letter D.

1. Department. The Missouri Department of Natural Resources.

2. Department of Health. The Missouri Department of Health and Senior Services.

3. Director. The director of the Missouri Department of Natural Resources.

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.

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.

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

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.

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).

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.

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.

(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.

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

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).

[4.]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.

[5.]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.

[6.]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.

8. Flowing stream. A course of running water flowing in a definite channel.

(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, **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. 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.]3. Gross alpha particle activity. The total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

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

[4.]5. Ground water under the direct influence of surface water (GWUDISW). 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 macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*.

(L) Terms beginning with the letter 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.

[1.]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.]3. *Legionella*. A genus of bacteria some species of which have caused a type of pneumonia called Legionnaires disease.

[3.]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.

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.

(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 the EPA Implementation Guidance for Radionuclides, Appendix J.

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.

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.

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.

[7.]8. Missouri Safe Drinking Water Law. The *Revised Statutes of Missouri*, sections 640.100 through 640.140.

(P) Terms beginning with the letter 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. Picocurie (pCi). The quantity of radioactive material producing 2.22 nuclear transformations per minute.

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.

[3.]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.

[4.]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.

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.

[5.]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.

[6.]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 non-community water system.

(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.

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.

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.

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.

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.

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.

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

(W) Terms beginning with the letter 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. 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.

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.

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.

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.

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.

AUTHORITY: section 640.100, RSMo Supp. [2002] 2008. Original rule filed May 4, 1979, effective Sept. 14, 1979. For intervening history, please consult the Code of State Regulations. Amended: Filed Feb. 27, 2009.

PUBLIC COST: This proposed amendment will cost state agencies and other political subdivisions less than five hundred dollars (\$500) in the aggregate.

PRIVATE COST: This proposed amendment will cost private entities less than five hundred dollars (\$500) in the aggregate.

NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: A public hearing will be held on this rulemaking at 10 a.m. on May 19, 2009, at the Truman State Office Building, 301 West High Street, Jefferson City, Missouri. Anyone may submit comments in support of or in opposition to this proposed amendment. In preparing your comments, 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. The commission is also accepting written comments on this rulemaking. Written comments must be postmarked or received

by May 19, 2009. Written comments must be mailed or faxed to: Ms. Linda McCarty, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102-0176. The fax number is (573) 751-3110.

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

PROPOSED RULE

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 10 CSR 60-4.050 and 10 CSR 60-4.055. This rule adopts the requirements found in subpart W of 40 CFR part 141.*

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

(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.

(B) Applicability.

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.

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.

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

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;

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;

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;

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

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.

(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.

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. 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.

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.

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.

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

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

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

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.

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.

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

(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.

(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—

Source Water Monitoring Starting Dates Table

Systems that serve:	Must begin the first round of source water monitoring no later than the month beginning:	And must begin the second round of source water monitoring no later than the month beginning:
At least 100,000 people	October 1, 2006	April 1, 2015
From 50,000 to 99,999	April 1, 2007	October 1, 2015
From 10,000 to 49,999	April 1, 2008	October 1, 2016
Fewer than 10,000 and monitor for <i>E. coli</i>	October 1, 2008	October 1, 2017
Fewer than 10,000 and monitor for <i>Cryptosporidium</i> (Applies to filtered systems that meet the conditions of paragraph (2)(A)3. of this rule.)	April 1, 2010	April 1, 2019

(D) Monitoring Avoidance.

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. 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.

(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:

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. 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.

(F) New Source Requirements.

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. 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.

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.

(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.

(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.

(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.

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.

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. 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.

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

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.

(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.

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.

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.

(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.

(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.

(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.

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 unlikely to have a significant adverse effect on the analysis of the sample.

(C) Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition.

(D) Bank Filtration Requirements.

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

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.

(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.

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

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.

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.

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.

(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.

(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.

(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).

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

(6) Reporting Source Water Monitoring Results.

(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.

(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.

(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.

(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.

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

1. For each *Cryptosporidium* analysis—

A. Systems must report the following data elements:

(I) Public water system (PWS) ID;

(II) Facility ID;

(III) Sample collection date;

(IV) Sample type (field or matrix spike);

(V) Sample volume filtered (L), to nearest;

(VI) Was one hundred percent (100%) of filtered volume examined; and

(VII) Number of oocysts counted;

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;

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

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

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

A. PWS ID;

B. Facility ID;

- C. Sample collection date;
- D. Analytical method number;
- E. Method type;
- F. Source type (flowing stream, lake/reservoir, GWUDISW);
- G. *E. coli*/100 mL; and
- 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.

(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).

(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.

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

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

A. Method 1623: *Cryptosporidium and Giardia in Water by Filtration/IMS/FA*, 2005, United States Environmental Protection Agency, EPA-815-R-05-002;

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

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

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

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

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

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.

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

(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.

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.

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.

(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.

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.

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:

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

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;

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

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.

(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.

(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.

(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:

1. A completed disinfection profile and disinfection benchmark for *Giardia lamblia* and viruses as described in section (9) of this rule;
2. A description of the proposed change in disinfection practice; and
3. An analysis of how the proposed change will affect the current level of disinfection.

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

1. Changes to the point of disinfection;
2. Changes to the disinfectant(s) used in the treatment plant;
3. Changes to the disinfection process; or
4. Any other modification identified by the department as a significant change to disinfection practice.

(9) Developing the Disinfection Profile and Benchmark.

(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.

(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.

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

(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.

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.

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.

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

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.

A. Determine one (1) inactivation ratio ($CT_{calc}/CT_{99,9}$) before or at the first customer during peak hourly flow.

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 $(CT_{calc}/CT_{99,9})$ values together to determine $(\sum (CT_{calc}/CT_{99,9}))$.

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 $(\sum (CT_{calc}/CT_{99,9}))$ must be calculated using the method in subparagraph (9)(D)1.A. of this section.

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).

4. Systems must calculate the log of inactivation for viruses using a protocol approved by the department.

(E) Systems must use the procedures specified in paragraphs (9)(E)1. and 2. to calculate a disinfection benchmark.

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.

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.

(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.

(B) Procedures for Bin Determination.

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.

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.

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.

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.

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.

(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:	The bin classification is:
Required to monitor for <i>Cryptosporidium</i> under section (2) of this rule.	$Cryptosporidium < 0.075$ oocyst/L	Bin 1
	$0.075 \text{ oocysts/L} \leq Cryptosporidium < 1.0$ oocysts/L	Bin 2
	$1.0 \text{ oocysts/L} \leq Cryptosporidium < 3.0$ oocysts/L	Bin 3
	$Cryptosporidium \geq 3.0$ oocysts/L	Bin 4
Serving fewer than 10,000 people and NOT required to monitor for <i>Cryptosporidium</i> under paragraph (2)(A)3.	NA	Bin 1

(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.

(E) Reporting Bin Classification Requirements.

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.

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.

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.

(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.

(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.

If the system bin classification is:	And the system uses the following filtration treatment in full compliance with 10 CSR 60-4.050, 10 CSR 60-4.055, and 10 CSR 60-7.010 (as applicable), then the additional <i>Cryptosporidium</i> treatment requirements are:			
	Conventional filtration treatment (including softening)	Direct Filtration	Slow sand or diatomaceous earth filtration	Alternative filtration technologies
Bin 1	No additional treatment	No additional treatment	No additional treatment	No additional treatment
Bin 2	1-log treatment	1.5-log treatment	1-log treatment	As determined by the department such that the total <i>Cryptosporidium</i> removal and inactivation is at least 4.0-log.
Bin 3	2-log treatment	2.5-log treatment	2-log treatment	As determined by the department such that the total <i>Cryptosporidium</i> 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 <i>Cryptosporidium</i> removal and inactivation is at least 5.5-log.

(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.

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.

(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.

(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.

(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.

<i>Cryptosporidium</i> Treatment Compliance Dates Table	
Systems that serve:	Must comply with <i>Cryptosporidium</i> treatment requirements no later than the following dates, except that the department may allow up to an additional two (2) years for complying with the treatment requirement for systems making capital improvements:
1. At least 100,000 people	April 1, 2012
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

(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.

(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.

(B) The following table summarizes options in the microbial toolbox:

Microbial Toolbox Summary Table: Options, Treatment Credit, and Criteria

Toolbox Option	<i>Cryptosporidium</i> 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 management	No prescribed credit. Systems may conduct simultaneous monitoring for treatment 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 coagulation	0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in turbidity or alternative department-approved 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).
Bank filtration	0.5-log credit for 25-foot setback; 1.0-log 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 performance	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 month. Specific criteria are in subsection (16)(A).
Individual filter performance	0.5-log credit (in addition to 0.5-log combined filter performance credit) if 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 (16)(B).
Demonstration of performance	Credit awarded to unit process or treatment train based on a demonstration to the department with a department-approved protocol. Specific criteria are in subsection (16)(C).
Bag or cartridge filters (individual filters)	Up to 2-log credit based on the removal efficiency demonstrated during challenge testing with a 1.0-log factor of safety. Specific criteria are in subsection (17)(A).
Bag or cartridge filters (in series)	Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety. 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).
Ozone	Log credit based on measured CT in relation 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.

(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.

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.

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.

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.

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.

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.

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.

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.

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.

5. Systems must complete the actions in subparagraphs (14)(A)5.A.–C. of this rule to maintain the 0.5-log credit.

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 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.

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.

(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*.

(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.

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.

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.

(B) Alternative Source Requirements.

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.

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.

3. Alternative source monitoring under paragraph (14)(B)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.

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.

(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.

1. The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a surface water or GWUDISW source.

2. The system must continuously add a coagulant to the presedimentation basin.

3. The presedimentation basin must achieve the performance criteria in subparagraph (15)(A)3.A. or B. of this rule.

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: $\log_{10}(\text{monthly mean of daily influent turbidity}) - \log_{10}(\text{monthly mean of daily effluent turbidity})$.

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.

(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.

(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.

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.

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.

3. Only horizontal and vertical wells are eligible for treatment credit.

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.

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.

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.

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.

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.

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.

(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).

(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).

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.

2. No individual filter may have a measured turbidity greater than 0.3 NTU in two (2) consecutive measurements taken fifteen (15) minutes apart.

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:

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

B. The system has experienced no more than two (2) such failures in any calendar year.

(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.

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.

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.

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.

(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.

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.

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.

3. Challenge testing must be conducted using *Cryptosporidium* or a surrogate that is removed no more efficiently than *Cryptosporidium*. 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.

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:

$$\text{Maximum Feed Concentration} = 1 \times 10^4 \times (\text{Filtrate Detection Limit}).$$

5. Challenge testing must be conducted at the maximum design flow rate for the filter as specified by the manufacturer.

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.

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:

$$\text{LRV} = \text{LOG}_{10}(C_f) - \text{LOG}_{10}(C_p)$$

Where:

LRV = log removal value demonstrated during challenge testing

C_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.

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 ($\text{LRV}_{\text{filter}}$) must be assigned the value of the minimum LRV observed during the three (3) challenge periods for that filter.

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 $\text{LRV}_{\text{filter}}$ 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 $\text{LRV}_{\text{filter}}$ 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.

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.

(B) Membrane Filtration Requirements.

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 10 CSR 60-2.015 are eligible for this credit. The level of treatment credit a system receives is equal to the lower of the values determined under subparagraphs (17)(B)1.A. and B.

A. The removal efficiency demonstrated during challenge testing conducted under the conditions in paragraph (17)(B)2.

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.

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.

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.

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.

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:

$$\text{Maximum Feed Concentration} = 3.16 \times 10^6 \times (\text{Filtrate Detection Limit})$$

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).

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:

$$\text{LRV} = \text{LOG}_{10}(C_f) - \text{LOG}_{10}(C_p)$$

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.

F. The removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value ($\text{LRV}_{C\text{-Test}}$). If fewer than twenty (20) modules are tested, then $\text{LRV}_{C\text{-Test}}$ is equal to the lowest of the representative LRVs among the modules tested. If twenty (20) or more modules are tested, then $\text{LRV}_{C\text{-Test}}$ 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.

G. The challenge test must establish a quality control release value (QCRV) for a non-destructive 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.

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.

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).

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.

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.

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.

(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:

$$\text{LRV}_{\text{DIT}} = \text{LOG}_{10} (Q_p / (\text{VCF} \times Q_{\text{breach}}))$$

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.

(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:

$$\text{LRV}_{\text{DIT}} = \text{LOG}_{10}(C_f) - \text{LOG}_{10}(C_p)$$

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

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.

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.

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.

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.

A. Unless the department approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.

B. Continuous monitoring must be conducted at a frequency of no less than once every fifteen (15) minutes.

C. Continuous monitoring must be separately conducted on each membrane unit.

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.

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.

(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.

(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.

(A) Calculation of CT Values.

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.

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 deter-

mine the total CT for the treatment plant.

(B) CT Values for Chlorine Dioxide and Ozone.

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:

$$\text{Log credit} = (0.001506 \times (1.09116)^{\text{Temp}}) \times \text{CT}$$

CT Values (MG-MIN/L) for *Cryptosporidium* Inactivation By Chlorine Dioxide

Log credit	Water temperature, °C										
	≤ 0.5	1	2	3	5	7	10	15	20	25	30
0.25	159	153	140	128	107	90	69	45	29	19	12
0.5	319	305	279	256	214	180	138	89	58	38	24
1.0	637	610	558	511	429	360	277	179	116	75	49
1.5	956	915	838	767	643	539	415	268	174	113	73
2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
2.5	1594	1525	1396	1278	1072	899	691	447	289	188	122
3.0	1912	1830	1675	1534	1286	1079	830	536	347	226	147

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.

CT Values (MG-MIN/L) for <i>Cryptosporidium</i> Inactivation by Ozone											
Systems may use this equation to determine log credit between the indicated values: $\text{Log credit} = (0.0397 \times (1.09757)^{\text{temp}}) \times \text{CT}$											
Log credit	Water Temperature, °C										
	≤ 0.5	1	2	3	5	7	10	15	20	25	30
0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
2.0	48	46	42	38	32	26	20	12	7.8	4.9	3.1
2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9
3.0	72	69	63	57	47	39	30	19	12	7.4	4.7

(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.

(D) Ultraviolet Light. Systems receive *Cryptosporidium*, *Giardia lamblia*, and virus-treatment 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.

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 <i>Cryptosporidium</i> , <i>Giardia lamblia</i> , and Virus Inactivation Credit			
Log credit	<i>Cryptosporidium</i> UV dose (mJ/cm ²)	<i>Giardia lamblia</i> UV dose (mJ/cm ²)	Virus UV dose (mJ/cm ²)
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

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.

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.

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.

C. The department may approve an alternative approach to validation testing.

3. Reactor monitoring requirements.

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.

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.

(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.

(B) Filtered systems must report their *Cryptosporidium* bin classification as described in section (10) of this rule.

(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.

(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.

Microbial Toolbox Reporting Requirements		
Toolbox option	Systems must submit the following information	On the following schedule
Watershed control program (WCP)	(I) Notice of intention to develop a new or continue an existing watershed control program	No later than two years before the applicable treatment compliance date in section (12) of this rule
	(II) Watershed control plan	No later than one year before the applicable treatment compliance date in section (12) of this rule
	(III) Annual watershed control program status report	Every 12 months, beginning one year after the applicable treatment compliance date in section (12) of this rule
	(IV) Watershed sanitary survey report	For community water systems, every three years beginning three years after the applicable treatment compliance date in section (12) of this rule. For noncommunity water systems, every five years beginning five years after the applicable treatment compliance date in section (12) of this rule
Alternative source/intake management	Verification that system has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results	No later than the applicable treatment compliance date in section (12) of this rule
Presedimentation	Monthly verification of the following: (I) Continuous basin operation; (II) Treatment of 100% of the flow; (III) Continuous addition of a coagulate; and (IV) At least 0.5-log mean reduction of influent turbidity or compliance with alternative department-approved performance criteria	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule
Two-stage lime softening	Monthly verification of the following: (I) Chemical addition and hardness precipitation occurred in two separate and sequential softening stages prior to filtration; and (II) Both stages treated 100% of the plant flow	Monthly reporting within 10 days following the month in which the monitoring was conducted beginning on the applicable treatment compliance date in section (12) of this rule
Bank filtration	(I) Initial demonstration of the following: (A) Unconsolidated, predominantly sandy aquifer; and (B) Setback distance of at least 25 ft. (0.5-log credit) or 50 ft. (1.0-log credit)	No later than the applicable treatment compliance date in section (12) of this rule
	(II) If monthly average of daily max turbidity is greater than 1 NTU, then the system must report result and submit an assessment of the cause	Report within 30 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule

Combined filter performance	Monthly verification of combined filter effluent (CFE) turbidity levels less than or equal to 0.15 NTU in at least 95% of the 4 hour CFE measurements taken each month	Monthly reporting within 10 days following the month in which the monitoring was conducted beginning on the applicable treatment compliance date in section (12) of this rule
Individual filter performance	Monthly verification of the following: (I) Individual filter effluent (IFE) turbidity levels less than or equal to 0.15 NTU in at least 95% of samples each month in each filter; and (II) No individual filter greater than 0.3 NTU in two consecutive readings 15 minutes apart	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule
Demonstration of performance	(I) Results from testing following a department approved protocol	No later than the applicable treatment compliance date in section (12) of this rule
	(II) As required by the department, monthly verification of operation within conditions of department approval for demonstration of performance credit	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule
Bag filters and cartridge filters	(I) Demonstration that the following criteria are met: (A) Process meets the definition of bag or cartridge filtration; and (B) Removal efficiency established through challenge testing that meets criteria in this rule	No later than the applicable treatment compliance date in section (12) of this rule
	(II) Monthly verification that 100% of plant flow was filtered	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule
Membrane filtration	(I) Results of verification testing demonstrating the following: (A) Removal efficiency established through challenge testing that meets criteria in this rule; and (B) Integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline	No later than the applicable treatment compliance date in section (12) of this rule
	(II) Monthly report summarizing the following: (A) All direct integrity tests above the control limit; and (B) If applicable, any turbidity or alternative department approved indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule

Second stage filtration	Monthly verification that 100% of flow was filtered through both stages and that first stage was preceded by coagulation step	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule
Slow sand filtration (as secondary filter)	Monthly verification that both a slow sand filter and a preceding separate stage of filtration treated 100% of flow from surface water and ground water under the direct influence of surface water sources	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule
Chlorine dioxide	Summary of CT values for each day as described in section (18) of this rule	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule
Ozone	Summary of CT values for each day as described in section (18) of this rule	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule
UV	Validation test results demonstrating operating conditions that achieve required UV dose	No later than the applicable treatment compliance date in section (12) of this rule
	Monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose specified in subsection (18)(D) of this rule	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section (12) of this rule

AUTHORITY: section 640.100, RSMo Supp. 2008. Original rule filed Feb. 27, 2009.

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PUBLIC COST: This rule is anticipated to cost the Missouri Department of Natural Resources approximately one hundred twenty-seven thousand seven hundred sixty-two dollars (\$127,762) annually each year the rule is in effect and approximately \$2,084,765 in one-time aggregate costs for the duration of the rule. The rule is anticipated to cost publicly-owned public water systems using surface water or ground water under the direct influence of surface water approximately \$35,135,519 in the aggregate.

PRIVATE COST: This rule is anticipated to cost fifteen (15) privately-owned public water systems using surface water or ground water under the direct influence of surface water approximately \$7,197,529 in the aggregate.

NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: A public hearing will be held on this rulemaking at 10 a.m. on May 19, 2009, at the Truman State Office Building, 301 West High Street, Jefferson City, Missouri. Anyone may submit comments in support of or in opposition to this proposed rule. In preparing your comments, 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. The commission is also accepting written comments on this rulemaking. Written comments must be postmarked or received by May 19, 2009. Written comments must be mailed or faxed to: Ms.

**FISCAL NOTE
PUBLIC COST**

- I. Department Title: Department of Natural Resources**
Division Title: Public Drinking Water Program
Chapter Title: Contaminant Levels and Monitoring

Rule Number and Name:	10 CSR 60-4.052 Source Water Monitoring and Enhanced Treatment Requirements
Type of Rulemaking:	Proposed Rule

II. SUMMARY OF FISCAL IMPACT

Affected Agency or Political Subdivision	Estimated Cost of Compliance in the Aggregate
Missouri Department of Natural Resources (MDNR)	Estimated annual cost each year the rule is in effect = \$127,762 Estimated aggregate monitoring costs = \$2,084,765
Publicly-owned Public Water Systems using surface water or ground water under the influence of surface water	Estimated aggregate cost = \$35,135,519

III. WORKSHEET**MDNR Costs:**

- MDNR estimated annual FTE cost.
2.0 FTE Environmental Specialist III x \$63,881 annually for each year the rule is in effect.
- MDNR aggregate monitoring cost (contract).

First round of source water monitoring = \$833,906 contract costs
3284 sampling events x \$253.93 = \$833,906

Second round of source water monitoring = \$1,250,859 contract costs
3284 sampling events x \$380.89 = \$1,250,859

Total estimated MDNR contract costs for source water monitoring = \$2,084,765

Publicly-owned public water system costs:

- Source water monitoring (sample collection): \$190,799
First round: 3284 sampling events x 2 hours per event x \$15 per hour x 83% = \$81,771
Second round: 3284 sampling events x 2 hours per event x 20 per hour x 83% = \$109,028
- Disinfection profiling/benchmarking: \$18,720
2 hours per week X \$15/hr X 52 weeks to create a disinfection profile/benchmark X 12 systems needing disinfection profiling/benchmarking = \$18,720
- Additional treatment: \$34,926,000
Estimate 30 systems whose source water monitoring indicates additional logs of removal credit (Bins 2, 3, or 4) will be necessary, which will require additional treatment at a potential aggregate cost of \$34,926,000.

IV. ASSUMPTIONS

MDNR Assumptions:

1. MDNR assumes that implementing and enforcing this rule will require 2.0 FTE at the Environmental Specialist III level. Implementation activities include establishing source water monitoring contracts, coordinating source water monitoring schedules and related activities, following up on source water monitoring compliance, reviewing invoices, reviewing results, reviewing bin classifications, approving plans for treatment plant upgrades, conducting inspections on the upgrades, tracking public notice and other activities. Enforcement activities will include: coordinate with noncompliant water suppliers to establish schedules for returning to compliance; assist non-compliant water systems in understanding complex regulatory requirements; review and process variance and exemption applications; initiate formal enforcement actions as necessary; coordinate with and provide training to regional office staff; and provide information and technical assistance regarding available treatment or other compliance alternatives. Current average costs, including salary, indirect, fringe, and equipment and expense, is approximately \$63,881 for the Environmental Specialist III classification. Average annual work hours for one FTE is estimated at 2,000 hours.
2. Contract costs for source water monitoring for the first round of monitoring for Missouri's 89 surface water and ground water under the direct influence of surface water (GUDISW) systems is \$833,906.
3. Contract costs for the second round of monitoring are projected to increase by 50% due primarily to surging prices in shipping costs. This increase is shown in the worksheet.
4. MDNR assumes there will be 3,284 sampling events in the first round of source water monitoring and a similar number in the second round of monitoring. These sampling events include monitoring for *Cryptosporidium*, *E. coli* and triggered *Cryptosporidium* monitoring. Eighty-three percent of Missouri's surface water systems are publicly-owned.
5. MDNR assumes that samples will be collected by a water operator, and assumes based on historical data that the average wage paid to a water system operator is \$15.00 per hour.
6. Systems that are going to make a significant change to their disinfection practices and who did not create a disinfection profile under existing surface water treatment rules must create one under this rule. Of the 74 publicly-owned surface water systems, MDNR estimates that 25% of them, or 19 systems, may be required to conduct a disinfection profile. It is estimated that five of these 19 have created a disinfection profile under existing rules for both *Giardia* and virus, leaving 12 publicly owned surface water systems to create a disinfection profile/benchmark under this new rule. MDNR assumes these 12 systems will spend two hours per week at an average FTE cost of \$15 per hour, times 52 weeks, to create a disinfection profile/benchmark. $2 \text{ hours} \times \$15/\text{hr} \times 52 \text{ weeks} \times 12 \text{ systems} = \$18,720$.
7. Based on existing monitoring data, MDNR assumes that 30 surface water systems will be required to add additional treatment to meet the requirements of this new rule. The level of treatment required will depend on the "bin" classification of the system, which will be determined by the results of source water monitoring. The rule establishes four bins. Three bins require water systems to install additional treatment. The additional treatment options include source water, pretreatment, treatment performance, additional filtration and inactivation options (16 options in all). Costs will vary widely, depending on the bin classification and the treatment option the system selects.
8. The U.S. Environmental Protection Agency estimates initial capital and one-time costs for all affected systems nationwide will be \$2,104,000,000. MDNR assumes that the impact on Missouri's public water systems will be comparable to that on similar public water systems in other states. Assuming

that Missouri's population is 5.8 million people and the national population is 304 million, Missouri's population is approximately 2% of the national population. On a per capita basis, 2% of the national cost estimate would equate to \$42,080,000 for additional treatment for Missouri's systems affected by this rule. Given that 83% of these systems are publicly owned, the cost to Missouri's publicly owned surface water systems would be \$34,926,000.

**FISCAL NOTE
PRIVATE COST**

- I. Department Title: Department of Natural Resources
Division Title: Public Drinking Water Program
Chapter Title: Contaminant Levels and Monitoring**

Rule Number and Name:	10 CSR 60-4.052 Source Water Monitoring and Enhanced Treatment Requirements
Type of Rulemaking:	Proposed Rule

II. SUMMARY OF FISCAL IMPACT

Estimate of the number of entities by class which would likely be affected by the adoption of the proposed rule:	Classification by types of the business entities which would likely be affected:	Estimate in the aggregate as to the cost of compliance with the rule by the affected entities:
15	Privately-owned public water systems using surface water or groundwater under the influence of surface water	\$7,197,529

III. Worksheet

- Source water monitoring (sample collection): \$39,069.60
 First round: 3284 sampling events x 2 hours per event x \$15 per hour x 17% = \$16,748.40
 Second round: 3284 sampling events x 2 hours per event x 20 per hour x 17% = \$22,321,20
- Disinfection profiling/benchmarking: \$4,860.
 2 hours per week X \$15/hr X 52 weeks to create a disinfection profile/benchmark X 3 systems needing disinfection profiling/benchmarking = \$4,860.
- Additional treatment: \$7,153,600
 Estimate 6 systems whose source water monitoring indicates additional logs of removal credit (Bins 2, 3, or 4) will be necessary, which will require additional treatment at a potential aggregate cost of \$7,153,600.

IV. ASSUMPTIONS

- MDNR assumes there will be 3,284 sampling events in the first round of source water monitoring and a similar number in the second round of monitoring. These sampling events include monitoring for *Cryptosporidium*, *E. coli* and triggered *Cryptosporidium* monitoring. Seventeen percent of Missouri's public water systems using surface water are privately owned.
- MDNR assumes that samples will be collected by a water operator, and assumes based on historical data that the average wage paid to a water system operator is \$15.00 per hour.

3. Systems that are going to make a significant change to their disinfection practices and who did not create a disinfection profile under existing surface water treatment rules must create one under this rule. Of the 15 privately-owned surface water systems, MDNR estimates that 2% of them, or 4 systems, may be required to conduct a disinfection profile. It is estimated that one of them have created a disinfection profile under existing rules for both Giardia and virus, leaving 3 privately owned surface water systems to create a disinfection profile/benchmark under this new rule. MDNR assumes these 3 systems will spend two hours per week at an average FTE cost of \$15 per hour, times 52 weeks, to create a disinfection profile/benchmark. $2 \text{ hours} \times \$15/\text{hr} \times 52 \text{ weeks} \times 3 \text{ systems} = \$4,860$.
4. Based on existing monitoring data, MDNR assumes that 6 privately-owned surface water systems will be required to add additional treatment to meet the requirements of this new rule. The level of treatment required will depend on the "bin" classification of the system, which will be determined by the results of source water monitoring. The rule establishes four bins. Three bins require water systems to install additional treatment. The additional treatment options include source water, pretreatment, treatment performance, additional filtration and inactivation options (16 options in all). Costs will vary widely, depending on the bin classification and the treatment option the system selects.
5. The U.S. Environmental Protection Agency estimates initial capital and one-time costs for all affected systems nationwide will be \$2,104,000,000. MDNR assumes that the impact on Missouri's public water systems will be comparable to that on similar public water systems in other states. Assuming that Missouri's population is 5.8 million people and the national population is 304 million, Missouri's population is approximately 2% of the national population. On a per capita basis, 2% of the national cost estimate would equate to \$42,080,000 for additional treatment for Missouri's systems affected by this rule. Given that 17% of these systems are privately owned, the cost to Missouri's privately owned surface water systems would be \$7,153,000.