Table D: Private Entities with Intermediate and Part 70 Operating Permits

Major Group SIC Code	SIC Description	# Affected Private Entities With Part 70 & Intermediate Permits
49	ELECTRIC, GAS, AND SANITARY SERVICES	87
28	CHEMICALS AND ALLIED PRODUCTS	48
30	RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS	30
37	TRANSPORTATION EQUIPMENT	30
51	WHOLESALE TRADE - NON DURABLE GOODS	29
20	FOOD AND KINDRED PRODUCTS	23
34	FABRICATED METAL PRODUCTS, EXCEPT MACHINERY & TRANSPORT EQUIPMENT	23
32	STONEY, CLAY, GLASS, AND CONCRETE PRODUCTS	19
29	PETROLEUM REFINERIES AND RELATED INDUSTRIES	17
33	PRIMARY METAL INDUSTRIES	17
27	PRINTING, PUBLISHING AND ALLIED INDUSTRIES	15
7	AGRICULTURAL SERVICES	13
14	MINING AND QUARRYING OF NONMETALLIC MINERALS EXCEPT FUELS	13
24	LUMBER AND WOOD PRODUCTS, EXCEPT FURNITURE	9
35	INDUSTRIAL AND COMMERCIAL MACHINERY AND COMPUTER EQUIPMENT	9
36	ELECTRONIC, ELECTRICAL EQUIPMENT AND COMPONENTS, EXCEPT COMPUTER EQUIPMENT	9
80	HEALTH SERVICES	9
26	PAPER AND ALLIED PRODUCTS	8
46	PIPELINES, EXCEPT NATURAL GAS	7
25	FURNITURE AND FIXTURES	4
31	LEATHER AND LEATHER PRODUCTS	4
82	EDUCATION SERVICES	4
42	MOTOR FREIGHT TRANSPORTATION	3
73	BUSINESS SERVICES	3
87	ENGINEERING, ACCOUNTING, RESEARCH MANAGEMENT & RELATED SERVICES	2
97	NATIONAL SECURITY AND INTERNATIONAL AFFAIRS	2
10	METAL MINING	1
16	HEAVY CONSTRUCTION, EXCEPT BUILDING CONSTRUCTION - CONTRACTORS	1
48	COMMUNICATIONS	1
50	WHOLESALE TRADE - DURABLE GOODS	1
65	REAL ESTATE	1
75	AUTOMOTIVE REPAIR, SERVICES AND PARKING	1
TOTAL		443

Table E: Private Entities with Basic Operating Permits

Major Group SIC Code	SIC Description	# Affected Private Entities With Basic Permits
14	MINING AND QUARRYING OF NONMETALLIC MINERALS, EXCEPT FUELS	202
32	STONEY, CLAY, GLASS, AND CONCRETE PRODUCTS	89
72	PERSONAL SERVICES	85
20	FOOD AND KINDRED PRODUCTS	83
51	WHOLESALE TRADE - NONDURABLE GOODS	69
49	ELECTRIC, GAS, AND SANITARY SERVICES	56
29	PETROLEUM REFINERIES AND RELATED INDUSTRIES	51
28	CHEMICALS AND ALLIED PRODUCTS	37
24	LUMBER AND WOOD PRODUCTS, EXCEPT FURNITURE	30
80	HEALTH SERVICES	23
33	PRIMARY METAL INDUSTRIES	19
34	FABRICATED METAL PRODUCTS,EXCEPT MACHINERY & TRANSPORT EQUIPMENT	19
30	RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS	17
7	AGRICULTURAL SERVICES	15
27	PRINTING, PUBLISHING AND ALLIED INDUSTRIES	12
35	INDUSTRIAL AND COMMERCIAL MACHINERY AND COMPUTER EQUIPMENT	11
42	MOTOR FREIGHT TRANSPORTATION	10
26	PAPER AND ALLIED PRODUCTS	9
37	TRANSPORTATION EQUIPMENT	9
36	ELECTRONIC, ELECTRICAL EQUIPMENT AND COMPONENTS, EXCEPT COMPUTER EQUIPMENT	8
46	PIPELINES, EXCEPT NATURAL GAS	8
10	METAL MINING	7
50	WHOLESALE TRADE - DURABLE GOODS	7
39	MISCELLANEOUS MANUFACTURING INDUSTRIES	5
87	ENGINEERING, ACCOUNTING, RESEARCH MANAGEMENT & RELATED SERVICES	5
73	BUSINESS SERVICES	4
82	EDUCATION SERVICES	4
25	FURNITURE AND FIXTURES	3
44	WATER TRANSPORTATION	3
48	COMMUNICATIONS	3
13	OIL AND GAS EXTRACTION	2
45	TRANSPORTATION BY AIR	2
75	AUTOMOTIVE REPAIR, SERVICES AND PARKING	2
79	AMUSEMENT AND RECREATION SERVICES	2
12	COAL MINING	1
17	CONSTRUCTON - SPECIAL TRADE CONTRACTORS	1
31	LEATHER AND LEATHER PRODUCTS	1
41	LOCAL, SUBURBAN TRANSIT &INTERSUBURBAN HIGHWAY PASSENGER SUPPORT	1
47	TRANSPORTATION SERVICES	1
52	BUILDING MATERIALS, HARDWARE, GARDEN SUPPLY & MOBILE HOME DEALERS	1
55	AUTOMOTIVE DEALERS AND GASOLINE SERVICE STATIONS	1
76	MISCELLANEOUS REPAIR SERVICES	1
92	JUSTICE, PUBLIC ORDER AND SAFETY	1
97	NATIONAL SECURITY AND INTERNATIONAL AFFAIRS	1
TOTAL		921

IV. ASSUMPTIONS

1. An annualized aggregate cost of this rulemaking is used for the purposes of providing the aggregate cost for the life of the rule. The annualized aggregate cost is the agency estimate of the average costs that will be incurred in any future year, no matter how far distant. For the convenience of calculating this fiscal note over a reasonable time frame, the life of the rule is assumed to be five (5) years although the duration of the rule is indefinite. If the life of the rule extends beyond 5 years, the annual costs for additional years will be consistent with the assumptions used to calculate annual costs as identified in this fiscal note.

2. The estimated number of facilities affected by this rulemaking listed in part II and Tables D and E is based on the Air Program's Missouri Emissions Inventory System (MoEIS) database. Based on MoEIS

data as of May 11, 2015, a total of 1,451 Missouri facilities have a part 70, intermediate or basic operating permit. Of these, an estimated 1,364 are private entities.

3. The total of 1,451 facilities with an operating permit discussed in assumption #2 is expected to decrease by roughly 300 due to anticipated changes to the basic operating permit program, which will be implemented through amendments to two rules: 10 CSR 10-6.065 *Operating Permits* and 10 CSR 10-6.020 *Definitions and Common Reference Tables*. One change occurring during this rulemaking is to remove the incinerator applicability language (subsection (1)(B)) from 10 CSR 10-6.065. This is estimated to result in approximately126 public and private facilities no longer having to obtain a basic operating permit. The other change would be handled in a separate rulemaking the Air Program is considering. Specifically, this rulemaking would amend the definition of "basic state installation" in 10 CSR 10-6.020 such that sources would no longer be required to obtain or renew a basic operating permit based solely on being subject to a requirement under sections 111 or 112 of the Clean Air Act, which includes federal Maximum Achievable Control Technology (MACT) and New Source Performance Standards (NSPS). After the revision to the "basic state installation" definition, an estimated 180 public and private facilities would no longer have to obtain a basic operating permit. If the 10 CSR 10-6.020 rulemaking does not happen, these 180 facilities would continue to be required to apply and pay for a basic operating permit.

4. The operating permit fee information and Table A in part III reflect combined public and private entity information used for department budget purposes.

5. Basic operating permit filing fees are based on $500 per filing effective January 1, 2017. This fee represents a $400 increase from the fee of $100 per filing prior to January 1, 2017.

6. Effective January 1, 2017, intermediate and part 70 operating permit filing fees are based on a tiered system that reflects the complexity of the permit. The new fee consists of a base fee ranging from $750 to $1,500, determined by the number of emission units at the facility, plus an additional complexity fee of $500 to $1,500 for facilities meeting certain criteria. The complexity items depend on the number of applicable new source performance standards, maximum achievable control technology standards, hazardous air pollutant standards, compliance assurance monitoring plans, confidentiality requests, and applicability to acid rain standards. This group of mid-range permits (permit cost is more than the minimum base fee, but less than the maximum fee) average to costing approximately $ 3,000 each. In this fee structure, the minimum application filing fee for intermediate and part 70 permits is $750 and the maximum is $6,000. The filing fee applies to the initial application and permit renewals every five years. This fee represents an increase ranging from $650 to $5,900 from the fee of $100 per application prior to January 1, 2017.

7. The operating permit fee information in part III is based on a review of all active intermediate and part 70 operating permits as of May 2015. This includes the breakdown of permits into ranges of emission units, number of sources with additional complexity fee items, and number of sources that reach the maximum proposed $6,000 filing fee.

8. All permit numbers shown in the operating permit fee information in part III represent a five-year period because operating permits are valid for five years, at which point they must be renewed.

9. In Table A, the average number of annual permit applications for FY2017-2022 is based on 3-year average annual revenue collected for all operating permit applications received during FY2012-2014. This 3-year average annual revenue was divided by the existing $100 filing fee to estimate the total number of operating permit applications received in a typical year. This figure was then broken down into basic versus intermediate/part 70 permits based on the average annual number of operating permit applications by type received during FY2012-2014.

10. The estimated fee collection (with and without fee change) for basic operating permits in Table B reflects the anticipated reduction in facilities required to obtain basic operating permits based on the potential rule changes described in assumption #3. Because the reduction in number of basic operating permits is unknown, these changes were accounted by reducing the three-year average annual revenue from basic operating permit applications by half. This is a conservative estimate for budget purposes, i.e., it errs on the high side of the estimated reduction in projected revenue. This number was derived differently from the total number of basic operating permits in Table E and is not comparable to the number in Table E because they are used for different purposes and at different times. If the 10 CSR

10-6.020 rulemaking to change the definition of "basic state installation" does not happen, the projected annual revenue from both public and private entity basic operating permits would increase by roughly $18,000 per year (based on the estimated 180 affected entities from MoEIS:
180 x $500(new fee) = $90,000 / 5 year term of permit – $18,000 total annual revenue).

11. Table C shows projected FY2017-2022 total operating permit revenue from private entities. These estimates assume that of the 190 basic and 97 intermediate/part 70 operating permit applications received on average each year, 181 and 88, respectively, are from private entities. The number of private entities is based on MoEIS data.

12. The fees collected are uniformly distributed throughout the fiscal years.

13. This fiscal note only includes estimated costs for changes made as a result of this proposed rule amendment. It also assumes an anticipated change to the definition of "basic state installation" in 10 CSR 10-6.020 as described in assumption #3. This change was assumed in this fiscal note for budget planning purposes. The impacts of this change will also be addressed in a fiscal note associated with the 10 CSR 10-6.020 rulemaking.

14. Note that numbers in charts appear as whole numbers, but actual numbers may include decimal places sometimes causing a variance in totals.

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 40—Land Reclamation Commission
Chapter 10—Permit and Performance Requirements for Industrial Mineral Open Pit and In-Stream Sand and Gravel Operations

PROPOSED AMENDMENT

10 CSR 40-10.020 Permit Application Requirements. The director is amending subsections (2)(E)–(F), (2)(H)–(J), and (3)(A).

PURPOSE: The amendment will increase acreage, site and total fees for Industrial Mineral Open Pit and In-Stream Sand and Gravel Operation mining more than five thousand (5,000) tons per year along with clarifying public notice certified mail out requirements, aligning the rules with a name change of a federal government agency and changing a recommendation to a decision by the director for permit issuance or denial.

(2) As required by section 444.772, RSMo, an applicant shall provide a complete application package submitted which includes the following:

(E) Two (2) different maps sufficient for the following purposes:

1. One (1) map sufficient to locate and distinguish the mining site from other mine sites in the general area of the county;

2. One (1) map of sufficient scale and detail to illustrate the following:

A. The names of any persons or businesses having any surface or subsurface interest in the lands to be mined, including owners or leaseholders of the land and utilities as well as the names of all record landowners of real property located contiguous or adjacent to the **property** proposed *[mine plan area:]* **for mining;**

[(I) Contiguous shall mean in actual contact, touching along a boundary or at a point;

(II) Adjacent shall mean immediately opposite from, as in across a road right-of- way, or across a river or stream;

(III) Neither definition shall include the names of any record landowners of contiguous real property or real property located in an adjacent state, but only land located in the state of Missouri;]

B. The boundaries and the acreage of each site, if proposing multiple sites, of all areas proposed to be affected over the permit term;

C. The approximate location of public roads located in or within one hundred feet (100') of the proposed permit area;

D. The date that the map was prepared, a north arrow and section, township**,** and range lines;

E. The name of the creek or stream being mined, if an in-stream operation is proposed;

F. This map must be prepared on an original or clearly copied United States Geological Survey (USGS) seven and one-half (7 1/2) minute topographical map, county assessor map, *[Agricultural Stabilization Conservation Service (ASCS)]* **Farm Service Agency (FSA)** aerial photos or up-to-date county ownership plats or on a map of equal or better quality; and

G. The locations of terraces, waterways, diversions**,** and post-mining land use designations shall be identified on the permit map;

3. Both maps and all copies submitted must be clearly legible and must contain the company name, mine or site name, date of last map edit, scale indication (such as a scale bar or numerical ratio)**,** and a symbol definition key for any special symbols used; and

4. If the applicant requests a permit for a portion of the area described in a long-term operation and reclamation plan, the applicant shall indicate the boundary of the proposed permit area and the boundary of the area proposed to be disturbed over the life of the mine on the map required by paragraph (2)(E)2. of this rule;

(F) All required fees based upon the type of operation and amount of production as follows:

1. An annual permit fee of *[five hundred dollars ($500)]* **eight hundred dollars ($800)***[.]***;**

2. An annual site fee for each site listed on a permit *[of three hundred dollars ($300). If surface mining operations are not conducted at a site for a total of six (6) months or more during any one (1) permit year, the fee for such site for that year shall be reduced by fifty percent (50%) or to the amount of one hundred fifty dollars ($150)]* **consisting of a hundredth (.01) to ten (10) acres a two hundred dollars ($200) site fee, ten and a hundredth (10.01) to seventy five (75) acres a five hundred dollars ($500) site fee, seventy five and a hundredth (75.01) to two hundred (200) acres an eight hundred dollars ($800) site fee and a site consisting of more than two hundred (200) acres a site fee of one thousand dollars ($1,000)***[.]***;**

3. An annual acreage fee for each acre bonded by the operator of *[five]* **thirteen** dollars ($*[5]***13**) per acre for each acre permitted*[.]***;**

4. For any operator of a gravel mining operation where the annual tonnage of gravel mined by such operator is less than five thousand (5,000) tons, the total cost of submitting an application shall be three hundred dollars ($300)*[.]***; and**

5. In no case shall the total fee for any permit be more than *[two thousand five hundred dollars ($2,500)]* **six thousand dollars ($6,000); except after January 1, 2019 the total fee shall not be more than seven thousand five hundred dollars ($7,500) and after January 1, 2021 the total fee shall not be more than nine thousand dollars ($9,000)***[.]***;**

[6. Fees imposed shall expire on December 31, 2007;]

(H) At the time the application is deemed complete by the director, the applicant shall publish a notice of intent to operate a surface mine in any newspaper qualified pursuant to section 493.050, RSMo, to publish legal notices in any county where the mine plan area is located. Notice in the newspaper shall be posted once a week for four (4) consecutive weeks beginning no more than ten (10) days after the application is deemed complete in writing by the director via certified mail upon receipt by the applicant. The applicant shall advertise a public notice in accordance with this subsection each time the applicant files a permit application for a new mine, files a request for expansion to an existing mine, when making revisions to the original operation and reclamation plan and when transferring the permit to a new operator, as defined in sections (5)–(7) of this rule. Public notices shall not be required for renewing existing permits or to permit additional acreage within a currently approved longterm operation and reclamation plan, as defined in paragraph (2)(D)6. of this rule. The notice must contain the following:

1. A statement of intent to conduct surface mining specifying the mineral and estimated period of operation;

2. The name and address of the operator;

3. A legal description of affected land consisting of county, section, township**,** and range;

4. The number of acres involved; **and**

5. A statement informing the public that written comments or a request for *[a hearing and/ or]* an informal public meeting may be made by any person with a direct, personal interest in one **(1)** or more of the factors that the *[Missouri Land Reclamation Commission]* **director** may consider in issuing a permit as required by The Land Reclamation Act, sections 444.760 to 444.790, RSMo, *[or whose health, safety or livelihood will be unduly impaired by the issuance of a permit]* regarding items such as permitting and reclamation requirements, erosion and siltation control, excavations posing a threat to public safety, or protection of public road rights-of-way. *[If a hearing is held the commission has the ability to consider if the applicant has demonstrated a pattern of noncompliance with other environmental protection laws and regulations administered by the Missouri Department of Natural Resources.]* Written comments shall be sent to the Director of Staff, Land Reclamation Program, Department of Natural Resources, at the program's latest mailing address. All comments and requests for

[hearings and/or] **a** public meeting*[s]* must be submitted in writing to the director's office within fifteen (15) days of the last date of publication of the notice;

(I) At the time the application is deemed complete by the director, the applicant shall also mail letters containing a notice of intent to operate a surface mine.

1. The applicant shall send the letters containing a notice of intent to operate a surface mine by certified mail to*[:]*—

A. The governing body of the counties or cities in which the proposed area is located; and

B. The last known addresses of all **first tier** record landowners *[of contiguous real property or real property located adjacent to the proposed mine plan area]* **whose property is within two thousand six hundred forty feet (2,640"), or one-half (1/2) mile from the border of the proposed mine plan area; and adjacent to the proposed mine plan area, land upon which the mine plan area is located, or adjacent land having a legal relationship with either the applicant or the owner of the land upon which the mine plan area is located.**

2. The content of the notice sent under this subsection shall be the same as the public notice requirements under subsection (2)(H) of this rule; and

(J) The applicant shall submit proof that*[:]*—

1. All certified letters required by this rule have been sent to all applicable parties, as listed above. Receipts showing that all parties have been properly served shall be submitted to the program to verify delivery; and

2. The newspaper ads have been run properly by submitting copies of the affidavits of publication that states the newspaper has complied with section 493.050, RSMo.

3. Such proof must be provided by the applicant prior to the director making a *[recommendation]* **decision** for approval or denial of the permit.

(3) As required by section 444.772, RSMo, any mining permit covering affected land that has not been totally reclaimed and released from liability prior to permit expiration must be renewed annually.

(A) The operator shall submit a permit renewal form furnished by the director for an additional permit year and pay an annual fee equal to an application fee calculated pursuant to subsection (2)(F) of this rule, but in no case shall the annual renewal fee for any operator be more than *[two thousand five hundred dollars ($2,500)]* **six thousand dollars ($6,000); except after January 1, 2019 the total fee shall not be more than seven thousand five hundred dollars ($7,500) and after January 1, 2021 the total fee shall not be more than nine thousand dollars ($9,000)**.

*AUTHORITY: **section 444.768, RSMo Supp. 2014, and** section 444.530, RSMo 2000. Original rule filed Aug. 2, 1991, effective Feb. 6, 1992. For intervening history, please consult the **Code of State Regulations**. Amended: Filed Aug. 12, 2015.*

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 cost private entities an estimated two hundred three thousand dollars ($203,000) in the aggregate.

NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: A public hearing on this proposed amendment will begin at 9:00 a.m. on October 19, 2015. The public hearing will be held at 1101 Riverside Drive, Jefferson City, Missouri. Opportunity to be heard at the hearing shall be afforded any interested person. Written request to be heard should be submitted at least seven (7) days prior to the hearing to Director, Missouri Department of Natural Resources' Land Reclamation Program, PO Box 176, Jefferson City, MO 65102-0176, (573) 751-4041. Interested persons, whether or not heard, may submit a written statement of their views until 5:00 p.m., October 19, 2015. Written comments should be sent to Program Director, Land Reclamation Program, PO Box 176, Jefferson City, MO 65102-0176.

FISCAL NOTE
PRIVATE COST

I. Department Title: Department Of Natural Resources
Division Title: Missouri Geological Survey
Chapter Title: Permit and Performance Requirements for Industrial Mineral Open Pit and In-Stream Sand and Gravel Operations

Rule Number and Title:	10 CSR 40-10.020 Permit Application Requirements
Type of Rulemaking:	Amendment

II. SUMMARY OF FISCAL IMPACT

Estimate of the number of entities by class which would likely be affected by the adoption of the 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:
215	Mining Operators who mine greater than 5,000 tons of sand and gravel to include in-stream and open pit operators Mining Operators who are Open Pit Operators who do not mine sand and gravel	There is a combination of factors to consider. Each operator can have ranging from 0.1-1500+ acres over a variety of sites, at any time the factors within an operation can change from how many acres are being mined to how many sites are associated with those acres. For projected costs, please reference information in section III below. This proposed rule will cost private entities an estimated two hundred and three thousand dollars ($203,000) in the aggregate.

III. WORKSHEET

Permit Type	Projected Additional Costs
Sand & Gravel Operations Mining < 5,000 tons instream mining	There would be no increase to current costs.
Sand & Gravel Operations Mining > 5,000 tons in-stream mining and/or Open Pit Mining *Note: Operators can have both instream and open pit mining operations.*	There would be no increase to current permit fees. Increases will be to bonded acreage and site fees. *Mining operators have permitted acres, a portion or all of which will be bonded. Permitted acreage is the number of acres associated with each site under the permit certificate for instream mine sites. Instream sites are not required to have bonded acres; however, the permit certificate will reflect the amount of acres associated with each site. Bonded acreage is the number of open pit acres being mined and disturbed listed on the permit certificate.* Bonded acreage fee will increase from $10 to $13. There are 33,311.7 bonded acres (x$10) which currently generates $333,117. When the bonded acreage fee is increased by $3 for a total of $13 the generated income will be $433,052.17. The newly generated income based on projected bonded acreage fee increase amount will be approximately $100,000. *Site fees are determined by how many acres are associated with a site. A permit can have*

	multiple sites; there is no limit on how many sites can be associated with a permit. Site fees are a fee established for location of the area being mined. **Size of Site** **Number of Sites** **Site Fee** **0.01 – 10** acres **191** x**$200** $38,200; however these sites already generate $23,200 so the newly generated revenue is $15,000. **10.01 – 75** acres **240** x**$500** = $120,000; however these sites already generate $74,000 so the newly generated revenue is $46,000. **75.01 – 200** acres **99** x**$800**– $79,200; however these sites already generate $49,200 so the newly generated revenue is $30,000. **> 200.01** acres **32** x**$1,000**– $32,000; however these sites already generate $20,000 so the newly generated revenue is $12,000.
	Cap Amount: *Cap is the maximum fee collected by permit to include fees collected for permit, site and bonded acreage fees.* Cap Amounts will be tiered as follows: $6,000 beginning in 2017 $7,500 beginning in 2019 $9,000 beginning in 2021

IV. ASSUMPTIONS

The proposed fee structure within the amendment, if not disapproved by the general assembly, becomes effective January 1, 2017 under statute.

Proposed fees to be paid by the private entities to the DNR are essentially the costs of the projected revenues.

Costs to private entities are calculated by multiplying the proposed fee amounts by the number of permit applicants per year based on bonded acres and number of acres associated with each site. Projected additional costs to the private sector are the estimated costs in the aggregate based on the current amount of permits and acreages associated with each site. Bonded acres are based on the current amount of bonded acres.

The current amount of acres associated with each site, along with the amount of permits and bonded acres will change based on management of each site over time.

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 60—Safe Drinking Water Commission
Chapter 2—Definitions

PROPOSED AMENDMENT

10 CSR 60-2.015 Definitions. The commission is amending subsections (2)(C), (2)(L), and (2)(S).

PURPOSE: This amendment adopts definitions promulgated in the U.S. Environmental Protection Agency's Revised Total Coliform Rule (RTCR), 78 Federal Register 10269. These definitions include clean compliance history, Level 1 and Level 2 assessments, sanitary defect, and seasonal system.

(2) Definitions.

(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.

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.

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.

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.

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

6. Class I backflow hazard. See backflow hazard.

7. Class II backflow hazard. See backflow hazard.

8. Clean compliance history is, for the purposes of 10 CSR 60-4.022, a record of no Maximum Contaminant Level (MCL) or monitoring violations under 10 CSR 60-4.020; no monitoring violations; and no coliform treatment technique trigger exceedances or treatment technique violations under 10 CSR 60-4.022.

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

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

*[10.]***11.** Combined distribution system. The interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

*[11.]***12.** 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.

*[12.]***13.** 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.

*[13.]***14.** 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.

*[14.]***15.** 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.]***16.** 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.

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

*[17.]***18.** 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).

*[18.]***19.** 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.

*[19.]***20.** 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.

*[20.]***21.** 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.

*[21.]***22.** 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.

*[22.]***23.** CT. The product of the residual disinfectant concentration (C) in milligrams per *[/]***/L**iter (mg/*[/]*/**L**) determined before or at the first customer and the corresponding disinfectant contact time (T) in minutes (that is, C multiplied by T ($C \times T$)). (See also residual disinfectant concentration and disinfectant contact time.)

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

*[24.]***25.** 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.

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

(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.

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.

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

4. Level 1 assessment is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. It is conducted by the system operator or owner. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

5. Level 2 assessment is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system's monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. It is conducted by an individual approved by the department, which may include the system operator. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system. The system must comply with any expedited actions or additional actions required by the department in the case of an *E. coli* MCL violation.

*[4.]***6.** 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.]***7.** 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.

(S) Terms beginning with the letter S.

1. Sanitary defect is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

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

3. Seasonal system is a non-community water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

*[2.]***4.** Secondary contaminant levels. Those contaminant levels established by the department for contaminants which may affect the taste, odor, color, staining, and scale-forming tendencies of water.

*[3.]***5.** Secondary public water system. A public water system which obtains all its water from an approved public water system(s), consists of a water distribution system, and resells the water or is a carrier which conveys passengers in interstate commerce. Parts of a primary public water system may be classified as being a secondary public water system if they meet this definition and are physically separated from those parts served by the source for the primary public water system.

*[4.]***6.** Sedimentation. A process for removal of solids before filtration by gravity separation.

*[5.]***7.** Service connection. Any water line or pipe connected to a water distribution main or pipe for the purpose of conveying water to a point of use.

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

*[7.]***9.** Single family structure. For the purpose of the lead and copper provisions of these rules only, a building constructed as a single family residence that is currently used as either a residence or a place of business.

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

*[9.]***11.** Supplier of water. Any person who owns, controls, or operates a public water system.

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

*[11.]***13.** System with a single service connection. A system which supplies drinking water to consumers via a single service line.

*AUTHORITY: section 640.100, RSMo Supp. [2008] **2014**. Original rule filed May 4, 1979, effective Sept. 14, 1979. For intervening history, please consult the **Code of State Regulations**. Amended: Filed Aug. 12, 2015.*

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 OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Safe Drinking Water Commission will hold a public hearing on this proposed amendment at 10:00 a.m. on October 16, 2015 at the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri. Any interested person may comment during the public hearing in support of or in opposition to the proposed amendment. Written comments postmarked or received by October 19, 2015 will also be accepted. Written comments must be mailed to: Scott Weckenborg, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102, or hand-delivered to the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri.

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

PROPOSED AMENDMENT

10 CSR 60-4.020 Maximum Microbiological Contaminant Levels and Monitoring Requirements. The commission is amending section (7) and adding section (8).

PURPOSE: This amendment modifies coliform sampling requirements to include revisions to the Total Coliform Rule (TCR). Certain provisions of the rule are applicable until March 31, 2016 or until all repeat monitoring is completed under the TCR and then are replaced by the Revised Total Coliform Rule (RTCR), 78 Federal Register 10269. On April 1, 2016 systems will be required to continue monitoring on the same frequency as on March 31, 2016.

(7) **Maximum Contaminant Levels (**MCL**)** for Microbiological Contaminants.

(A) *[The]* **Until March 31, 2016, the total coliform** MCL is based on the presence or absence of total coliforms in a sample, rather than coliform density. Public water systems need only determine the presence or absence of total coliforms; a determination of total coliform density is not required.

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

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

(B) *[Any]* **Until March 31, 2016, any** fecal coliform-positive repeat sample or *E. coli*-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or *E. coli*-positive routine sample constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in 10 CSR 60-8.010, this is a violation that may pose an acute risk to health.

(C) Beginning April 1, 2016, a system is in compliance with the MCL for *E. coli* for samples taken under the provisions of 10 CSR 60-4.022 of this section unless any of the conditions identified in paragraphs (7)(C)1. through (7)(C)4. of this rule occur. For purposes of the public notification requirements in 10 CSR 60-8.010, violation of the MCL for *E. coli* may pose an acute risk to health.

1. The system has an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

2. The system has a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

3. The system fails to take all required repeat samples following an *E. coli*-positive routine sample.

4. The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.

*[(C)]***(D) Until March 31, 2016,** *[A]***a** public water system must determine compliance with the MCL for total coliforms in subsections (7)(A) and (B) of this rule for each month in which it is required to monitor for total coliforms. **Beginning April 1, 2016, a public water system must determine compliance with the MCL in subsection (7)(C) of this rule for each month in which it is required to monitor for total coliforms.**

(8) Coliform sampling. The provisions of sections (1) and (4) of this rule are applicable until March 31, 2016. The provisions of sections (2), (3), (5), and (6) of this section and 10 CSR 60-5.010(3) are applicable until all required repeat monitoring under section (2) of this rule and fecal coliform or *E. coli* testing under section (5) of this rule that was initiated by a total coliform-positive sample taken before April 1, 2016 is completed, as well as analytical method, reporting, recordkeeping, public notification, and consumer confidence report requirements associated with that monitoring and testing. Beginning on April 1, 2016, the provisions of 10 CSR 60-4.022 are applicable, with systems required to begin regular monitoring at the same frequency as the system-specified frequency required on March 31, 2016.

*AUTHORITY: section 640.100, RSMo Supp. [2002] **2014**. Original rule filed May 4, 1979, effective Sept. 14, 1979. For intervening history, please consult the **Code of State Regulations**. Amended: Filed Aug. 12, 2015.*

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 OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Safe Drinking Water Commission will hold a public hearing on this proposed amendment at 10:00 a.m. on October 16, 2015 at the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri. Any interested person may comment during the public hearing in support of or in opposition to the proposed amendment. Written comments postmarked or received by October 19, 2015 will also be accepted. Written comments must be mailed to: Scott Weckenborg, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102, or hand-delivered to the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri.

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

PROPOSED RULE

10 CSR 60-4.022 Revised Total Coliform Rule

PURPOSE: The rule establishes sampling and monitoring requirements for public water systems. The rule also establishes a maximum contaminant level (MCL) for E. coli and uses E. coli and total coliforms to initiate a "find and fix" approach to address fecal contamination that could enter into the distribution system. It requires public water systems to perform assessments to identify sanitary defects and subsequently take corrective action to correct them. The rule sets monitoring and treatment technique requirements for seasonal systems. At the beginning of each operating period, before serving water to the public, seasonal systems meeting criteria must conduct state-approved start-up procedures and certify completion of start-up procedures. The rule is based on the requirements in the federal Revised Total Coliform Rule found in subpart Y of 40 CFR part 141.

(1) General Requirements and Applicability.

(A) The provisions of this rule include both maximum contaminant level (MCL) and treatment technique requirements.

(B) Applicability. The provisions of this rule apply to all public water systems.

(C) Compliance date. Systems must comply with the provisions of this rule beginning April 1, 2016, unless otherwise specified in this rule.

(D) Violations of national primary drinking water regulations. Failure to comply with the applicable requirements of this rule, including requirements established by the department pursuant to these provisions, is a violation of the National Primary Drinking Water Regulations.

(2) Analytical methods and laboratory certification.

(A) Analytical methodology.

1. The standard sample volume required for analysis, regardless of analytical method used, is one hundred milliliter (100 mL).

2. Systems need only determine the presence or absence of total coliforms and *E. coli*; a determination of density is not required.

3. The time from sample collection to initiation of test medium incubation may not exceed thirty (30) hours. Systems are encouraged but not required to hold samples below ten degrees (10°) Celsius during transit.

4. If water having residual chlorine (measured as free, combined, or total chlorine) is to be analyzed, sufficient sodium thiosulfate ($Na_2S_2O_3$) must be added to the sample bottle before sterilization to neutralize any residual chlorine in the water sample. Dechlorination procedures are addressed in Section 9060A.2 of *Standard Methods for the Examination of Water and Wastewater* (20th and 21st editions).

5. Total coliform and *E. coli* analyses must be conducted in accordance with one (1) of the analytical methods or alternative methods incorporated by reference in 10 CSR 60-5.010(3).

(B) Laboratory Certification. Systems must have all compliance samples required under this rule analyzed by a laboratory certified by the Environmental Protection Agency (EPA) or the department to analyze drinking water samples. The laboratory used by the system must be certified for each method (and associated contaminant(s)) used for compliance monitoring analyses under this rule.

(3) General monitoring requirements for all public water systems.

(A) Sample siting plans.

1. Systems must develop a written sample siting plan that identifies sampling sites and a sample collection schedule that are representative of water throughout the distribution system no later than March 31, 2016. These plans are subject to department review and revision. Systems must collect total coliform samples according to the written sample siting plan. Monitoring required by sections (4)–(8) of this rule may take place at a customer's premise, dedicated sampling station, or other designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of 10 CSR 60-4.025 must be reflected in the sampling plan.

2. The minimum monitoring frequency for total coliforms is based on the population served by the system as defined in the chart in section (7) of this rule except that systems using surface water or ground water under the direct influence of surface water or systems practicing iron removal or lime softening must collect at least five (5) samples per month. Unless the department approves or specifies in writing of a lesser frequency based on population and system type as defined in sections (4)–(7) of this rule, systems must monitor each calendar month that the system provides water to the public. Systems must collect samples at regular time intervals throughout the month, except that systems that use only ground water and serve four thousand nine hundred (4,900) or fewer people may collect all required samples on a single day if they are taken from different sites.

3. Systems must take at least the minimum number of required samples even if the system has had an *E. coli* maximum contaminant level (MCL) violation or has exceeded the coliform treatment technique triggers in subsection (9)(A) of this rule.

4. A system may conduct more compliance monitoring than is required by this rule to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A system may take more than the minimum number of required routine samples and must include the results in calculating whether the coliform treatment technique trigger in subparagraphs (9)(A)1.A.–B. of this rule has been exceeded only if the samples are taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.

5. Systems must identify repeat monitoring locations in the sample siting plan. Unless the provisions of subparagraphs (3)(A)5.A. or B. of this rule are met, the system must collect at least one (1) repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one (1) repeat sample at a tap within five (5) service connections upstream and at least one (1) repeat sample at a tap within five (5) service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one (1) service connection away from the end of the distribution system, the system must still take all required repeat samples. However, the department may allow an alternative sampling location instead of the requirement to collect at least one (1) repeat sample upstream or downstream of the original sampling site. Except as provided for in subparagraph (3)(A)5.B. of this rule, systems required to conduct triggered source water monitoring under 10 CSR 60–4.025(3)(A) must take ground water source sample(s) in addition to repeat samples required under this rule.

A. Systems may propose repeat monitoring locations to the department that the system believes to be representative of a pathway for contamination of the distribution system. A system may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis in a standard operating procedure (SOP) in its sample siting plan. The system must design its SOP to focus the repeat samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations. The department may modify the SOP or require alternative monitoring locations as needed.

B. Ground water systems serving one thousand (1,000) or fewer people may propose repeat sampling locations to the department that differentiate potential source water and distribution system contamination (e.g., by sampling at entry points to the distribution system). A ground water system with a single well required to conduct triggered source water monitoring may, with written department approval, take one (1) of its repeat samples at the monitoring location required for triggered source water monitoring under 10 CSR 60-4.025(3)(A) if the system demonstrates to the department's satisfaction that the sample siting plan remains representative of water quality in the distribution system. If approved by the department, the system may use that sample result to meet the monitoring requirements in both 10 CSR 60-4.025(3)(A) and this section.

(I) If a repeat sample taken at the monitoring location required for triggered source water monitoring is *E. coli*-positive, the system has violated the *E. coli* MCL and must also comply with 10 CSR 60-4.025(3)(A)3. If a system takes more than one (1) repeat sample at the monitoring location required for triggered source water monitoring, the system may reduce the number of additional source water samples required under 10 CSR 60-4.025(3)(A)3. by the number of repeat samples taken at that location that were not *E. coli*-positive.

(II) If a system takes more than one (1) repeat sample at the monitoring location required for triggered source water monitoring under 10 CSR 60-4.025(3)(A) and more than one (1) repeat sample is *E. coli*-positive, the system has violated the *E. coli* MCL and must also comply with 10 CSR 60-4.025(4)(A)1.

(III) If all repeat samples taken at the monitoring location required for triggered source water monitoring are *E. coli*-negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is *E. coli*-positive, the system has violated the *E. coli* MCL, but is not required to comply with 10 CSR 60-4.025(3)(A)3.

6. The department may review, revise, and approve, as appropriate, repeat sampling proposed by systems under subparagraphs (3)(A)5.A.–B. of this rule. The system must demonstrate that the sample siting plan remains representative of the water quality in the distribution system. The department may determine that monitoring at the entry point to the distribution system (especially for undisinfected ground water systems) is effective to differentiate between potential source water and distribution system problems.

(B) Special purpose samples. Special purpose samples, such as

those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether the coliform treatment technique trigger has been exceeded. Repeat samples taken pursuant to section (8) of this rule are not considered special purpose samples and must be used to determine whether the coliform treatment technique trigger has been exceeded.

(C) Invalidation of total coliform samples. A total coliform-positive sample invalidated under this subsection (3)(C) does not count toward meeting the minimum monitoring requirements of this rule.

1. The department may invalidate a total coliform-positive sample only if any of the following conditions are met:

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

B. The department, on the basis of the results of repeat samples collected as required under subsection (8)(A) of this rule, determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The department cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original tap are total coliform-negative (e.g., the department cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the system has only one (1) service connection).

C. The department has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under subsection (8)(A) of this rule, and use them to determine whether a coliform treatment technique trigger in section (9) of this rule has been exceeded. To invalidate a total coliform-positive sample under this subsection, the decision and supporting rationale must be documented in writing, and approved and signed by the supervisor of the department official who recommended the decision. The department must make this document available to EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample and what action the system has taken, or will take, to correct this problem. The department may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

2. A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within twenty-four (24) hours of being notified of the interference problem and have it analyzed for the presence of total coliforms. The system must continue to re-sample within twenty-four (24) hours and have the samples analyzed until it obtains a valid result. The department may waive the twenty-four (24) hour time limit on a case-by-case basis. Alternatively, the department may implement criteria for waiving the twenty-four (24) hour sampling time limit to use in lieu of case-by-case extensions.

(4) Routine monitoring requirements for non-community water systems serving one thousand (1,000) or fewer people using only ground water.

(A) General monitoring requirements.

1. The provisions of this section apply to non-community water systems using only ground water (except ground water under the direct influence of surface water, as defined in 10 CSR 60-2.015) and serving one thousand (1,000) or fewer people.

2. Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in section (8) of this rule.

3. Once all monitoring required by this section and section (8) of this rule for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in section (9) of this rule have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by section (9) of this rule.

4. For the purpose of determining eligibility for remaining on or qualifying for quarterly monitoring under the provisions of paragraphs (4)(F)4. and (4)(G)2., respectively, of this rule for transient non-community water systems, the department may elect to not count monitoring violations under paragraph (10)(C)1. of this rule if the missed sample is collected no later than the end of the monitoring period following the monitoring period in which the sample was missed. The system must collect the make-up sample in a different week than the routine sample for that monitoring period and should collect the sample as soon as possible during the monitoring period. The department may not use this provision under subsection (H) of this section. This authority does not affect the provisions of paragraph (10)(C)1. of this rule and 10 CSR 60-7.010(12)(D).

(B) Monitoring frequency for total coliforms. Unless the department approves of a lesser frequency in writing, the minimum monitoring frequency for total coliforms is one (1) sample per month except that systems practicing iron removal or lime softening must collect at least five (5) routine samples per month. In addition, the department may require a greater frequency if necessary. Seasonal systems must meet the monitoring requirements of subsection (4)(I) of this rule. With written department approval, systems must monitor each calendar quarter that the system provides water to the public, except for seasonal systems or as provided under subsections (4)(C)-(H) and (4)(J) of this rule.

(C) Transition to the Revised Total Coliform Rule.

1. Systems, including seasonal systems, must continue to monitor according to the total coliform monitoring schedules under 10 CSR 60-4.020 that were in effect on March 31, 2016, unless any of the conditions for increased monitoring in subsection (4)(F) of this rule are triggered on or after April 1, 2016, or unless otherwise directed by the department.

2. Beginning April 1, 2016, the department will perform a special monitoring evaluation during each sanitary survey to review the status of the system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the department has performed the special monitoring evaluation during each sanitary survey, the department may modify the system's monitoring schedule, as necessary, or it may allow the system to stay on its existing monitoring schedule, consistent with the provisions of this section (4). The department may not allow systems to begin less frequent monitoring under the special monitoring evaluation unless the system has already met the applicable criteria for less frequent monitoring in this section. For seasonal systems on quarterly or annual monitoring, this evaluation must include review of the approved sample siting plan, which must designate the time period(s) for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). The seasonal system must collect compliance samples during these time periods.

(D) Annual site visits. Beginning no later than calendar year 2017, systems on annual monitoring, including seasonal systems, must have an initial and recurring annual site visit by the department that is equivalent to a Level 2 assessment or an annual voluntary Level 2 assessment that meets the criteria in subsection (9)(B) to remain on annual monitoring. The periodic required sanitary survey may be used to meet the requirement for an annual site visit for the year in which the sanitary survey was completed.

(E) Criteria for annual monitoring. Beginning April 1, 2016, the department may reduce the monitoring frequency for a well-operated ground water system from quarterly routine monitoring to no less than annual monitoring, if the system demonstrates that it meets the criteria for reduced monitoring in paragraphs (4)(E)1.-3. of this rule, except for a system that has been on increased monitoring under the provisions of subsection (4)(F) of this rule. A system on increased monitoring under subsection (4)(F) of this rule must meet the provisions of subsection (4)(G) of this rule to go to quarterly monitoring and must meet the provisions of subsection (4)(H) of this rule to go to annual monitoring.

1. The system has a clean compliance history for a minimum of twelve (12) months;

2. The most recent sanitary survey shows that the system is free of sanitary defects or has corrected all identified sanitary defects, has a protected water source, and meets approved construction standards; and

3. The department has conducted an annual site visit within the last twelve (12) months and the system has corrected all identified sanitary defects. The system may substitute a Level 2 assessment that meets the criteria in subsection (9)(B) of this rule for the department annual site visit.

(F) Increased Monitoring Requirements for systems on quarterly or annual monitoring. A system on quarterly or annual monitoring that experiences any of the events identified in paragraphs (4)(F)1.–4. of this section must begin monthly monitoring the month following the event. A system on annual monitoring that experiences the event identified in paragraph (4)(F)5. of this rule must begin quarterly monitoring the quarter following the event. The system must continue monthly or quarterly monitoring until the requirements in subsection (4)(G) of this rule for quarterly monitoring or subsection (4)(H) of this rule for annual monitoring are met. A system on monthly monitoring for reasons other than those identified in paragraphs (4)(F)1.–4. of this rule is not considered to be on increased monitoring for the purposes of subsections (4)(G) and (4)(H) of this section.

1. The system triggers a Level 2 assessment or two (2) Level 1 assessments under the provisions of section (9) in a rolling twelve (12) month period.

2. The system has an *E. coli* MCL violation.

3. The system has a coliform treatment technique violation.

4. The system has two (2) Revised Total Coliform Rule monitoring violations or one (1) Revised Total Coliform Rule monitoring violation and one (1) Level 1 assessment under the provisions of section (9) in a rolling twelve (12) month period for a system on quarterly monitoring.

5. The system has one (1) Revised Total Coliform Rule monitoring violation for a system on annual monitoring.

(G) Requirements for returning to quarterly monitoring. The department may reduce the monitoring frequency for a system on monthly monitoring triggered under subsection (4)(F) of this section to quarterly monitoring if the system meets the criteria in paragraphs (4)(G)1. and 2. of this rule.

1. Within the last twelve (12) months, the system must have a completed sanitary survey or a site visit by the department or a voluntary Level 2 assessment by a party approved by the department, be free of sanitary defects, and have a protected water source; and

2. The system must have a clean compliance history for a minimum of twelve (12) months.

(H) Requirements for systems on increased monitoring to qualify for annual monitoring. The department may reduce the monitoring frequency for a system on increased monitoring under subsection (4)(F) of this section if the system meets the criteria in subsection (4)(G) of this section plus the criteria in paragraphs (4)(H)1. and 2. of this section.

1. An annual site visit by the department and correction of all identified sanitary defects. The system may substitute a voluntary Level 2 assessment by a party approved by the department for the department annual site visit in any given year.

2. The system must have in place or adopt one or more additional enhancements to the water system barriers to contamination in subparagraphs (4)(H)2.A.–E. of this section.

A. Cross connection control, as approved by the department.

B. An operator certified by an appropriate department certification program or regular visits by a circuit rider certified by an appropriate department certification program.

C. Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the department.

D. Demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under 10 CSR 60-4.025(4)(B)3.

E. Other equivalent enhancements to water system barriers as approved by the department.

(I) Seasonal systems.

1. Beginning April 1, 2016, all seasonal systems must demonstrate completion of a department-approved start-up procedure, which may include a requirement for startup sampling prior to serving water to the public.

2. A seasonal system must monitor every month that it is in operation unless it meets the criteria in subparagraphs (4)(I)2.A.–C. of this rule to be eligible for monitoring less frequently than monthly beginning April 1, 2016, except as provided under subsection (4)(C) of this rule.

A. Seasonal systems monitoring less frequently than monthly must have an approved sample siting plan that designates the time period for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). Seasonal systems must collect compliance samples during this time period.

B. To be eligible for quarterly monitoring, the system must meet the criteria in subsection (4)(G) of this section.

C. To be eligible for annual monitoring, the system must meet the criteria under subsection (4)(H) of this rule.

3. The department may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating, except that systems that monitor less frequently than monthly must still monitor during the vulnerable period designated by the department.

(J) Additional routine monitoring the month following a total coliform-positive sample. Systems collecting samples on a quarterly or annual frequency must conduct additional routine monitoring the month following one (1) or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Systems must collect at least three (3) routine samples during the next month, except that the department may waive this requirement if the conditions of paragraphs (4)(J)1.–3. of this rule are met. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform treatment technique trigger calculations under subsection (9)(A) of this rule.

1. The department may waive the requirement to collect three (3) routine samples the next month in which the system provides water to the public if the department, or an agent approved by the department, performs a site visit before the end of the next month in which the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the department to determine whether additional monitoring and/or any corrective action is needed. The department cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the department to perform sanitary surveys.

2. The department may waive the requirement to collect three (3) routine samples the next month in which the system provides water to the public if the department has determined why the sample

was total coliform-positive and has established that the system has corrected the problem or will correct the problem before the end of the next month in which the system serves water to the public. In this case, the department must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the department official who recommends such a decision, and make this document available to the EPA and public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct this problem.

3. The department may not waive the requirement to collect three (3) additional routine samples the next month in which the system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. If the department determines that the system has corrected the contamination problem before the system takes the set of repeat samples required in section (8) of this rule, and all repeat samples were total coliform-negative, the department may waive the requirement for additional routine monitoring the next month.

(5) Routine monitoring requirements for community water systems serving 1,000 or fewer people using only ground water.

(A) General Routine Monitoring.

1. The provisions of this section apply to community water systems using only ground water (except ground water under the direct influence of surface water, as defined in 10 CSR 60-2.015) and serving 1,000 or fewer people.

2. Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in section (8) of this rule.

3. Once all monitoring required by section (5) and section (8) of this rule for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in section (9) of this rule have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by section (9) of this rule.

(B) Monitoring frequency for total coliforms. Unless the department approves of a lesser frequency in writing as provided for under subsections (5)(C)-(F) of this rule, the monitoring frequency for total coliform is one (1) sample per month except that systems practicing iron removal or lime softening must collect at least five (5) routine samples per month.

(C) Transition to the Revised Total Coliform Rule.

1. All systems must continue to monitor according to the total coliform monitoring schedules under 10 CSR 60-4.020 that were in effect on March 31, 2016, unless any of the conditions in subsection (5)(E) of this rule are triggered on or after April 1, 2016, or unless otherwise directed by the department.

2. Beginning April 1, 2016, the department must perform a special monitoring evaluation during each sanitary survey to review the status of the system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the department has performed the special monitoring evaluation during each sanitary survey, the department may modify the system's monitoring schedule, as necessary, or it may allow the system to stay on its existing monitoring schedule, consistent with the provisions of this section. The department may not allow systems to begin less frequent monitoring under the special monitoring evaluation unless the system has already met the applicable criteria for less frequent monitoring in this section.

(D) Criteria for reduced monitoring.

1. The department may reduce the monitoring frequency from monthly monitoring to no less than quarterly monitoring if the system is in compliance with department-certified operator provisions and demonstrates that it meets the criteria in subparagraphs (5)(D)1.A.–C. of this rule. A system that loses its certified operator must return to monthly monitoring the month following that loss.

A. The system has a clean compliance history for a minimum of twelve (12) months.

B. The most recent sanitary survey shows the system is free of sanitary defects (or has an approved plan and schedule to correct them and is in compliance with the plan and the schedule), has a protected water source and meets approved construction standards.

C. The system meets at least one (1) of the following criteria:

(I) The system had an annual site visit by the department that is equivalent to a Level 2 assessment or an annual Level 2 assessment by a party approved by the department and correction of all identified sanitary defects (or the system has an approved plan and schedule to correct them and is in compliance with the plan and schedule);

(II) The system has cross connection control, as approved by the department;

(III) The system has continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the department;

(IV) The system has a demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under 10 CSR 60-4.025(4)(B)3.; or

(V) Other equivalent enhancements to water system barriers as approved by the department.

(E) Return to routine monthly monitoring requirements. Systems on quarterly monitoring that experience any of the events in paragraphs (5)(E)1.-4. of this rule must begin monthly monitoring the month following the event. The system must continue monthly monitoring until it meets the reduced monitoring requirements in subsection (5)(D) of this rule.

1. The system triggers a Level 2 assessment or two (2) Level 1 assessments in a rolling twelve (12) month period.

2. The system has an *E. coli* MCL violation.

3. The system has a coliform treatment technique violation.

4. The system has two (2) Revised Total Coliform Rule monitoring violations in a rolling twelve (12) month period.

(F) Additional routine monitoring the month following a total coliform-positive sample. Systems collecting samples on a quarterly frequency must conduct additional routine monitoring the month following one (1) or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Systems must collect at least three (3) routine samples during the next month, except that the department may waive this requirement if the conditions of paragraphs (5)(F)1., 2., or 3. of this rule are met. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform treatment technique trigger calculations.

1. The department may waive the requirement to collect three (3) routine samples the next month in which the system provides water to the public if the department, or an agent approved by the department, performs a site visit before the end of the next month in which the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the department to determine whether additional monitoring or any corrective action, or both, is needed. The department cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the department to perform sanitary surveys.

2. The department may waive the requirement to collect three (3) routine samples the next month in which the system provides water to the public if the department has determined why the sample was total coliform-positive and has established that the system has corrected the problem or will correct the problem before the end of the next month in which the system serves water to the public. In this case, the department must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the department official who

recommends such a decision, and make this document available to the U.S. EPA and the public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct this problem.

3. The department may not waive the requirement to collect three (3) additional routine samples the next month in which the system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. If the department determines that the system has corrected the contamination problem before the system takes the set of repeat samples required in section (8) of this rule, and all repeat samples were total coliform-negative, the department may waive the requirement for additional routine monitoring the next month.

(6) Routine monitoring requirements for surface water and ground water under the direct influence of surface water public water systems serving one thousand (1,000) or fewer people.

(A) General Routine Monitoring.

1. This section (6) applies to surface water and ground water under the direct influence of surface water systems serving one thousand (1,000) or fewer people.

2. Following any total coliform-positive sample taken under the provisions of this section (6), systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in section (8) of this rule.

3. Once all monitoring required by this section (6) and section (8) of this rule for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in section (9) have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by section (9) of this rule.

4. Seasonal systems.

A. Beginning April 1, 2016, all seasonal systems must demonstrate completion of a department-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

B. The department may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating.

(B) Routine monitoring frequency for total coliforms. Surface water and groundwater under the direct influence of surface water systems (including consecutive systems) must monitor monthly. Systems may not reduce monitoring. Primary public water systems must collect a minimum of five (5) routine samples per month. In addition, the department may require a greater frequency if necessary.

(7) Routine monitoring requirements for public water systems serving more than one thousand (1,000) people.

(A) General Routine Monitoring.

1. The provisions of this section apply to public water systems serving more than one thousand (1,000) people.

2. Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in section (8) of this rule.

3. Once all monitoring required by this section and section (8) of this rule for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in section (9) of this rule have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by section (9) of this rule.

4. Seasonal systems.

A. Beginning April 1, 2016, all seasonal systems must demonstrate completion of a department-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

B. The department may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating.

(B) Monitoring frequency for total coliforms. The monitoring frequency for total coliforms is based on the population served by the system, as follows, except for systems using surface water or groundwater under the direct influence of surface water or practicing iron removal or lime softening must collect a minimum of five (5) routine samples per month:

Total Coliform Monitoring Frequency for Public Water Systems Serving More Than 1,000 People

Population served	Minimum number of samples per month
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

(C) Reduced monitoring. Systems may not reduce monitoring, except for non-community water systems using only ground water (and not ground water under the direct influence of surface water) serving one thousand (1,000) or fewer people in some months and more than one thousand (1,000) people in other months. In months when more than one thousand (1,000) people are served, the systems must monitor at the frequency specified in subsection (7)(B) of this rule. In months when one thousand (1,000) or fewer people are served, the department may reduce the monitoring frequency, in writing, to a frequency allowed under section (4) of this rule for a similarly situated system that always serves one thousand (1,000) or fewer people, taking into account the provisions in subsection (7)(E)–(G) of this rule.

(8) Repeat monitoring and *E. coli* requirements.

(A) Repeat monitoring.

1. If a sample taken under sections (4)–(7) of this rule is total coliform-positive, the system must collect a set of repeat samples within twenty-four (24) hours of being notified of the positive result. The system must collect no fewer than three (3) repeat samples for each total coliform-positive sample found. The department may extend the twenty-four (24) hour limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within twenty-four (24) hours that is beyond its control. Alternatively, the department may implement criteria for the system to use in lieu of case-by-case extensions. In the case of an extension, the department must specify how much time the system has to collect the repeat samples. The department cannot waive the requirement for a system to collect repeat samples in paragraphs (8)(A)1.-3. of this rule.

2. The system must collect all repeat samples on the same day, except that the department may allow a system with a single service connection to collect the required set of repeat samples over a three (3) day period or to collect a larger volume repeat sample(s) in one (1) or more sample containers of any size, as long as the total volume collected is at least three hundred milliliters (300 mL). Systems with more than one (1) service connection, but fewer service connections

than the required number of repeat samples, shall collect repeat samples as directed by the department.

3. The system must collect an additional set of repeat samples in the manner specified in paragraphs (8)(A)1.-3. of this rule if one (1) or more repeat samples in the current set of repeat samples is total coliform-positive. The system must collect the additional set of repeat samples within twenty-four (24) hours of being notified of the positive result, unless the department extends the limit as provided in paragraph (8)(A)1. of this rule. The system must continue to collect additional sets of repeat samples until either total coliforms are not detected in one (1) complete set of repeat samples or the system determines that a coliform treatment technique trigger specified in subsection (9)(A) of this rule has been exceeded as a result of a repeat sample being total coliform-positive and notifies the department. If a trigger identified in section (9) of this rule is exceeded as a result of a routine sample being total coliform-positive, systems are required to conduct only one (1) round of repeat monitoring for each total coliform-positive routine sample.

4. After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five (5) adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent sample(s) as a repeat sample instead of as a routine sample.

5. Results of all routine and repeat samples taken under sections (4)-(8) of this rule not invalidated by the department must be used to determine whether a coliform treatment technique trigger specified in section (9) of this rule has been exceeded.

(B) *Escherichia coli (E. coli)* testing.

1. If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine if *E. coli* are present. If *E. coli* are present, the system must notify the department by the end of the day when the system is notified of the test result, unless the system is notified of the result after the department office is closed and the department does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the department before the end of the next business day.

2. The department has the discretion to allow a system, on a case-by-case basis, to forgo *E. coli* testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is *E. coli*-positive. Accordingly, the system must notify the department as specified in paragraph (8)(B)1. of this rule and the provisions of 10 CSR 60-4.020(7)(C) apply.

(9) Coliform treatment technique triggers and assessment requirements for protection against potential fecal contamination.

(A) Treatment technique triggers. Systems must conduct assessments in accordance with subsection (9)(B) of this rule after exceeding treatment technique triggers in paragraphs (9)(A)1. and (9)(A)2. of this rule.

1. Level 1 treatment technique triggers.

A. For systems taking forty (40) or more samples per month, the system exceeds five percent (5.0%) total coliform-positive samples for the month.

B. For systems taking fewer than forty (40) samples per month, the system has two (2) or more total coliform-positive samples in the same month.

C. The system fails to take every required repeat sample after any single total coliform-positive sample.

2. Level 2 treatment technique triggers.

A. An *E. coli* MCL violation, as specified in section (10) of this rule.

B. A second Level 1 trigger as defined in paragraph (9)(A)1. of this rule, within a rolling twelve (12) month period, unless the department has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the system has corrected the problem.

C. For systems with approved annual monitoring, a Level 1 trigger in two (2) consecutive years.

(B) Requirements for assessments.

1. Systems must ensure that Level 1 and 2 assessments are conducted in order to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 2 assessments must be conducted by parties approved by the department.

2. When conducting assessments, systems must ensure that the person performing the assessment evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small ground water systems); and existing water quality monitoring data. The system must conduct the assessment consistent with any department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

3. Level 1 Assessments. A system must conduct a Level 1 assessment consistent with department requirements if the system exceeds one (1) of the treatment technique triggers in paragraph (9)(A)1. of this rule. The Level 1 assessment must be conducted consistent with any department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

A. The system must complete a Level 1 assessment as soon as practical after any trigger in paragraph (9)(A)1. of this rule. In the completed assessment form, the system must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified. The system must submit the completed Level 1 assessment form to the department within thirty (30) days after the system learns that it has exceeded a trigger.

B. If the department reviews the completed Level 1 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the department must consult with the system. If the department requires revisions after consultation, the system must submit a revised assessment form to the department on an agreed-upon schedule not to exceed thirty (30) days from the date of the consultation.

C. Upon completion and submission of the assessment form by the system, the department must determine if the system has identified a likely cause for the Level 1 trigger and, if so, establish that the system has corrected the problem, or has included a schedule acceptable to the department for correcting the problem.

4. Level 2 Assessments. A system must ensure that a Level 2 assessment consistent with department requirements is conducted if the system exceeds one (1) of the treatment technique triggers in paragraph (9)(A)2. of this rule. The Level 2 assessment must be conducted consistent with any department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system. The system must comply with any expedited actions or additional actions required by the department in the case of an *E. coli* MCL violation.

A. The system must ensure that a Level 2 assessment is completed by the department or by a party approved by the department as soon as practical after any trigger in paragraph (9)(A)2. of this rule. The system must submit a completed Level 2 assessment form to the department within thirty (30) days after the system learns that it has exceeded a trigger. The assessment form must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The

assessment form may also note that no sanitary defects were identified.

B. The system may conduct Level 2 assessments if the system has staff or management with the certification or qualifications specified by the department unless otherwise directed by the department.

C. If the department reviews the completed Level 2 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the department must consult with the system. If the department requires revisions after consultation, the system must submit a revised assessment form to the department on an agreed-upon schedule not to exceed thirty (30) days.

D. Upon completion and submission of the assessment form by the system, the department must determine if the system has identified a likely cause for the Level 2 trigger and determine whether the system has corrected the problem, or has included a schedule acceptable to the department for correcting the problem.

(C) Corrective Action. Systems must correct sanitary defects found through either Level 1 or 2 assessments conducted under subsection (9)(B) of this rule. For corrections not completed by the time of submission of the assessment form, the system must complete the corrective action(s) in compliance with a timetable approved by the department in consultation with the system. The system must notify the department when each scheduled corrective action is completed.

(D) Consultation. At any time during the assessment or corrective action phase, either the water system or the department may request a consultation with the other party to determine the appropriate actions to be taken. The system may consult with the department on all relevant information that may impact on its ability to comply with a requirement of this rule, including the method of accomplishment, an appropriate timeframe, and other relevant information.

(10) Violations.

(A) *E. coli* MCL Violation. A system is in violation of the MCL for *E. coli* when any of the conditions identified in paragraphs (10)(A)1.-4. of this rule occur.

1. The system has an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

2. The system has a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

3. The system fails to take all required repeat samples following an *E. coli*-positive routine sample.

4. The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.

(B) Treatment technique violation.

1. A treatment technique violation occurs when a system exceeds a treatment technique trigger specified in subsection (9)(A) of this rule and then fails to conduct the required assessment or corrective actions within the timeframe specified in subsections (9)(B) and (9)(C) of this rule.

2. A treatment technique violation occurs when a seasonal system fails to complete a department-approved start-up procedure prior to serving water to the public.

(C) Monitoring violations.

1. Failure to take every required routine or additional routine sample in a compliance period is a monitoring violation.

2. Failure to analyze for *E. coli* following a total coliform-positive routine sample is a monitoring violation.

(D) Reporting violations.

1. Failure to submit a monitoring report or completed assessment form after a system properly conducts monitoring or assessment in a timely manner is a reporting violation.

2. Failure to notify the department following an *E. coli*-positive sample as required by paragraph (8)(B)1. of this rule in a timely manner is a reporting violation.

3. Failure to submit certification of completion of department - approved start-up procedure by a seasonal system is a reporting violation.

(11) Reporting Requirements. Reporting requirements are in section (12) of 10 CSR 60-7.010 Reporting Requirements.

(12) Record-Keeping Requirements. Recordkeeping requirements are in section (5) of 10 CSR 60-9.010 Requirements for Maintaining Public Water System Records.

AUTHORITY: section 640.100, RSMo Supp. 2014. Original rule filed Aug. 12, 2015.

PUBLIC COST: This rule is anticipated to cost Missouri Department of Natural Resources an estimated annual aggregate cost of approximately two hundred eighty-seven thousand five hundred forty-nine dollars ($287,549) each year the rule is in effect and an estimated one-time cost of approximately fifty-six thousand six hundred seventy dollars ($56,670). This rule is anticipated to cost publicly-owned public water systems an estimated annual aggregate costs of one hundred twenty-nine thousand seven hundred ninety-three dollars ($129,793) and an estimated one (1) time cost of thirty five thousand three hundred eighty-five dollars ($35,385). The fiscal note for this proposed rule includes the information relied upon to develop the estimated cost of compliance.

PRIVATE COST: This rule is anticipated to cost private entities an estimated aggregate annual cost of one hundred ninety four thousand six hundred eighty-nine dollars ($194,689) and an estimated one (1) time cost of forty-three thousand seven hundred fifty-two dollars ($43,752). The fiscal note for this proposed rule includes the information relied upon to develop the estimated cost of compliance.

NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Safe Drinking Water Commission will hold a public hearing on this proposed rule at 10:00 a.m. on October 16, 2015 at the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri. Any interested person may comment during the public hearing in support of or in opposition to the proposed rule. Written comments postmarked or received by October 19, 2015 will also be accepted. Written comments must be mailed to: Scott Weckenborg, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102, or hand-delivered to the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri.

FISCAL NOTE

PUBLIC COST

I. RULE NUMBER

Rule Number and Name:	10 CSR 60-4.022 Revised Total Coliform Rule
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 aggregate cost each year the rule is in effect = $287,549 Estimated one-time costs = $56,670
1094 publicly-owned public water systems	Estimated annual aggregate costs = $129,793 Estimated one-time costs – $35,385

III. Worksheet

MDNR Costs:

1. 3 Full Time Employees (FTE) - $144,468 (annual costs)
2. Computer System Upgrade – Safe Drinking Water Information System (SDWIS) support - $203,327 X 67% = $136,229 (annual cost)
3. Administrative Costs - $56,670 (one-time costs)
4. Sample Site Plan Review – 736 plans X 0.5 hours X $18.62 = $6852

Public Water System (PWS) Costs:

1. Administrative Costs - $49,860 X 40% = $19,944 (one-time costs)
2. Revising Site Sample Plans – 1,094 PWSs X 20% X $17.76/hour X 4 hours X 40% = $6,217 (one-time costs)
3. Level 1 Assessments – 439 assessments per year X $17.76/hour X 7 hours x 40% = $21,831 (annual costs)
4. Level 2 Assessments (nonacute) – 82 assessments per year X $17.76/hour X 9 hours X 40% = $5,243 (annual costs)
5. Level 2 Assessments (acute) – 23 assessments per year X $17.76/hour X 21 hours X 40% = $3,431 (annual costs)
6. Corrective Actions - $248,220 X 40% = $99,288 (annual costs)

IV. Assumptions

1. The Environmental Protection Agency (EPA) promulgated the Total Coliform Rule (TCR) in 1989 to decrease the risk of waterborne illness. The TCR is the only Safe Drinking Water Act Rule that applies to

every public water supply, making it an essential part of the multi-barrier approach in public health protection. A public water system (PWS) is defined as: "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. A public water system is either a community water system or a noncommunity water system." The Revised Total Coliform Rule (RTCR) aims to increase public health protection through the reduction of potential pathways of entry for fecal contamination into the distribution system. Since these potential pathways represent vulnerabilities in the distribution system whereby fecal contamination and/or waterborne pathogens, including bacteria, viruses and parasitic protozoa could possibly enter the system, the reduction of these pathways in general should lead to reduced exposure and associated risk from these contaminants.

The RTCR maintains and strengthens the objectives of the 1989 TCR. The objectives are: (1) to evaluate the effectiveness of treatment, (2) to determine the integrity of the distribution system, and (3) to signal the possible presence of fecal contamination. The RTCR better addresses these objectives by requiring systems that may be vulnerable to fecal contamination (as indicated by their monitoring results) to do an assessment, to identify whether any sanitary defect(s) is (are) present, and to correct the defects. The RTCR takes a more preventive approach to identifying and fixing problems that affect or may affect public health. The impact of the RTCR on any given PWS may range from the minor expense for reading and becoming familiar with the new rule to extensive capital costs to install new drinking water infrastructure to correct sanitary defects. EPA did an extensive nation-wide cost analysis for the RTCR entitled: "Economic Analysis for the Proposed Revised Total Coliform Rule" (EPA 815-R-10-001) as required by Executive Order. EPA summarized the costs from that document in the final RTCR published February 13, 2013 in the Federal Register, Volume 78, Number 30. EPA used data from various sources (SDWIS-FED, Six-Year Review, and Ground Water Rule (GWR) Economic Analysis) to develop a predictive model for occurrence of total coliform and E. coli, how many Level 1 and Level 2 assessments to expect and corrective actions and violations over time. The cost estimates from that document as well as up-to-date Missouri inventory and compliance data will be used in this analysis.

MDNR Costs:

1. The Missouri Department of Natural Resources (MDNR) estimates that it will take three additional FTEs, one each in two of the five Regional Offices and one in the Public Drinking Water Branch to implement the provisions of the RTCR. All three FTEs would be at the Environmental Specialist III (ES III) level. The annual salary for an ES III is anticipated to be $48,156. In the Public Drinking Water Branch this would include one ES III to provide technical assistance and training, track compliance data, make violation determinations, generate notices of violations, track compliance with public notification requirements and report violation data to EPA. The Southwest Regional Office (SWRO) would also need an ES III position to assist PWSs with Level 1 and Level 2 assessments, tracking completed assessment forms, consulting with PWSs to determine appropriate corrective actions, tracking schedules to ensure corrective actions are completed, providing overall technical assistance, collecting repeat samples on all E. coli positive routine samples and tracking monitoring data. SWRO has the greatest need for additional help because their territory contains 48% of the 2722 PWSs in Missouri, and the largest percentage of small transient noncommunity systems state-wide (67%). Historically the smaller PWSs serving 1,000 or fewer customers are the systems that have had the most difficulty with TCR compliance and will need the most assistance with the new requirements in the RTCR. Using Missouri TCR compliance data from the four most recent calendar years (2011 through 2014), the MDNR is able to estimate the number of assessments that will be triggered. The average annual workload for SWRO will be approximately 232 Level 1 assessments and nine Level 2 assessments per year. The Southeast Regional Office (SERO) is similar to the SWRO in that they have the second highest inventory of PWSs of the MDNR's five Regional Offices with 19% of the PWSs state-wide and 17% of the small transient noncommunity systems. The anticipated workload for

SERO using the same four years of TCR compliance data is eighty four (84) Level 1 assessments and four (4) Level 2 assessments per year.

2. Administrative Costs - The MDNR will incur administrative costs for rule implementation that are not directly required by specific provisions of RTCR alternatives, but are necessary for States to ensure the provisions of the RTCR are properly carried out. The one-time administrative costs for initial rule implementation (rule review, training, State rule development and adoption and modifying the data system to track the new requirements and to report violation data to EPA. In addition, the MDNR will have ongoing administrative costs to track compliance data, make violation determinations, generate notices of violations, track compliance with public notification requirements and report violation data to EPA. The data system used to track PWS inventory, monitoring and compliance data is the SDWIS. The MDNR maintains a SDWIS support contract to assist with migrating modifications to SDWIS necessary to implement the rule, and for proprietary software to enhance and automate production. The contractual costs have averaged $203,327 per year over the last eight fiscal years and it is anticipated to be the cost for FY16. Because the RTCR will generate a large volume of data, and the most violations approximately 67% of the SDWIS support contract will be directly related to RTCR support.

   EPA did an extensive nation-wide cost analysis for the RTCR entitled: "Economic Analysis for the Proposed Revised Total Coliform Rule" (EPA 815-R-10-001) as required by Executive Order. EPA summarized the costs from that document in the final RTCR published February 13, 2013 in the Federal Register, Volume 78, Number 30. On page 7-8, in Exhibit 7.4 "Net Change in State Unit Burden and Cost Estimates for Rule Implementation", EPA estimated there will be one-time administrative costs for state drinking water programs to be approximately $56,670.

3. Revising Sample Siting Plans - EPA categorizes reviewing sample siting plans as a one-time activity for the States taking on average from one to four hours to review. However, MDNR plans to fulfill this regulatory activity at the time of the next scheduled sanitary survey. Community systems are surveyed once every three years and noncommunity systems once every five years. This amounts to approximately 736 sample siting plan reviews per year for DNR inspectors. The majority of PWSs in Missouri use the Department of Health and Senior Services (DHSS) lab for bacteriological testing (84.2%). DHSS is transitioning to a new lab information management system this year called OpenELIS. The exact configuration of the sampling information that OpenELIS will require is unknown at this time, and outside the scope of this rulemaking, but may also require modification to the sampling plans and MDNR staff time for technical assistance to Missouri's PWSs. The sample siting plan reviews maybe done by engineers or environmental specialist. Sampling plans have been required since the 1989 TCR, and some new requirements came with the 2006 GWR. Virtually every PWS has a sample siting plan in place so MDNR estimates the time necessary to review/modify the plans to be approximately one half hour. The average hourly salary of MDNR staff anticipated is $18.62 per hour.

4. Monitoring -The total coliform and E. coli testing required by the RTCR is performed by the DHSS lab for 84.2% of Missouri's PWSs. The rest of the testing is done in private or municipal certified labs. Missouri plans to transition to the RTCR with the same monthly routine monitoring schedules that are currently required by the TCR. Therefore there will be no additional cost to MDNR or DHSS for monitoring.

5. Annual Site Visits - The MDNR does not plan to implement the various reduced monitoring options in the RTCR. The MDNR firmly believes public health protection is better served with monthly monitoring data, and historically, Missouri PWSs have always monitored monthly. Also, field personnel are already having difficulty meeting commitments to perform sanitary surveys required by the GWR and the suite of Surface Water Treatment Rules. Therefore the MDNR does not plan on providing annual site visits and there will be no cost associated with this activity.

6. Assessments - The RTCR requires every PWS to assess their system when monitoring results shows a concern that contamination may be present. This treatment technique approach can trigger either a Level 1 assessment or a more detailed Level 2 assessment when the fecal indicator E. coli is detected. Level 1 and Level 2 assessments will include review and identification of the following elements:
    - Atypical events that may affect distributed water quality or indicated that distributed water quality was impaired
    - Changes in distribution system maintenance and operation that may affect distributed water quality, including water storage
    - Source and treatment considerations that bear on distributed water quality
    - Existing water quality monitoring data
    - Inadequacies in sample sites, sampling protocol, and sample processing

A Level 1 assessment is triggered by a total coliform violation under the 1989 TCR (two or more total coliform positive samples per month if the system takes less than 40 samples per month, or 5% of the samples positive for total coliform in a month for systems taking 40 or more samples). A Level 1 assessment is also triggered by monitoring violations for not taking any or enough repeat samples. The MDNR analyzed four years of TCR data from calendar years 2011 through 2014. The average number of total coliform maximum contaminant level (MCL) violations for those four years was 386. The average number of major and minor repeat monitoring violations for the same time period was 53. The sum of 439 of these violations is what the MDNR estimates will be the initial annual Level 1 assessment work load.

While EPA's expectation for Level 1 assessments is that they be self-assessments done by the PWS, based on the MDNR's experience the last 26 years implementing the 1989 TCR, the majority of the Level 1 assessment work will be in Missouri's small subdivision, mobile home park and noncommunity systems; and these small PWSs will need technical assistance to perform Level 1 assessments. Most of this work will be done on the phone, if the PWS can be reached. It should only take another 15 to 30 minutes more than current unsafe sample investigation under the 1989 TCR to go over the Level 1 assessment checklist with the PWS operator. If the PWS operator cannot be reached the assessment forms will have to be mailed and tracked for follow-up. On the average, the MDNR anticipates that Level 1 assessments will take approximately 2.5 hours on the high end, and approximately another 30 minutes more than unsafe sample investigations currently done with the TCR. The PWS must complete the Level 1 assessment within 30 days of learning one has been triggered, and submit a completed assessment form to the MDNR. The form must indicate what was assessed, whether any sanitary defects were identified, corrective actions suggested to correct the problem, if the corrective actions have already been completed or a proposed schedule for correcting any sanitary defects not corrected.

Level 2 assessments are triggered by an E. coli MCL violation or by having two Level 1 assessments in a rolling 12-month period. Using Missouri TCR data from 2011 through 2014 there has been an average of 23 E. coli MCL violations per year and an average of 82 systems with two or more TCR total coliform violations per year. The sum of 105 of these violations is what the MDNR anticipates will be the annual Level 2 work load. Level 2 assessments basically look at the same elements of a Level 1 assessment, but each element is examined in greater detail. It would be a more detailed examination of the PWS, its monitoring process and results and its operational practices. The level of effort and resources required to implement a Level 2 assessment would be commensurate with a more comprehensive investigation, a higher level review of information, and may involve of additional parties and expertise. The RTCR allows for Level 2 assessments to be performed by parties approved by the state, or by MDNR staff. The MDNR plans on performing the majority of the Level 2 assessments. The MDNR anticipates that the majority of the Level 2 assessments will be triggered in Missouri's smaller water systems and will necessitate technical

assistance from MDNR staff to perform them. Reviewing completed assessment forms, noting sanitary defects, consulting with the PWS on the appropriate corrective action(s) will also require MDNR staff time. MDNR staff already performs a level of consultation with PWSs during unsafe sample investigations under the 1989 TCR. The MDNR also performs compliance and operation inspections and sanitary surveys. The level of effort to perform Level 1 and 2 assessments is not anticipated to take an exorbitant amount of extra time; therefore the costs are included in the three (3) additional FTEs needed.

7. Corrective Actions - PWSs are required by the RTCR to take corrective action anytime a Level 1 or Level 2 assessment identifies a sanitary defect, and to notify the MDNR when corrective action(s) are completed. The burden for the MDNR will be reviewing assessment forms, coordinating with PWSs on the appropriate corrective action(s) to be implemented, determining an acceptable schedule for completing the corrective action(s), tracking the corrective action schedules, and ensuring that the corrective action(s) are completed as planned. The cost is included in the new FTEs item.

8. Public Notification - To help PWSs comply with public notification requirements, the MDNR currently generates a draft public notice and instructions for all drinking water violations. The highest volume of violations and attending public notification work comes from the 1989 TCR. EPA regulations also require community PWSs to provide information about their drinking water annually to their customers in a Consumer Confidence Report (CCR). The MDNR uses data from SDWIS and specially designed software from our SDWIS support contractor to generate skeleton consumer confidence reports for all 1446 community PWSs in Missouri. The MDNR posts them on the MDNR website to fulfill EPA's CCR distribution requirements. The vast majority of Missouri's systems use the MDNR's CCRs to comply with this public notice requirement. The overall burden to the MDNR will be reduced by the RTCR because the Tier 2 notification for non-acute MCL violations is being eliminated. However, there are additions to the mandatory public notice language for failure to perform assessments or seasonal start-up procedures, and substantial changes to RTCR related information required in the annual CCRs. This will require modifications to our data management system and the costs are included in the SDWIS support contract.

9. Seasonal Systems - A seasonal system is defined as a noncommunity system that is not operated on a year-round basis. Missouri has approximately 520 transient noncommunity systems that are seasonal. The annual shutdown and start-up process that seasonal systems currently use present an additional opportunity for contamination to enter the distribution system, particularly if the system is depressurized. At this point in time MDNR does not know how many of the seasonal systems in Missouri depressurize all or part of their system. The RTCR requires seasonal systems to perform special start-up procedures to prevent contamination and ensure the water is safe prior to providing water to the public. They must also demonstrate to the state that start-up procedures have been followed and completed by submitting a certification form to the MDNR prior to serving water to the public. EPA has given the states flexibility to determine what start-up procedures are appropriate for their water systems. MDNR anticipates this procedure would usually include steps to pressurize the system, shock chlorination of the well, flushing to disinfect the distribution system and submittal of special samples to confirm there is no contamination prior to serving water to the public. The costs for this effort are included in the new FTEs.

Public Water System Costs:

1. Administrative Costs - EPA estimates that on average a PWS will need 4 hours to read and understand the RTCR and another 8 hours to plan implementation activities and assign staff. The RTCR applies to every PWS so the MDNR anticipates that costs to small TNCs will be minimal because they will wait for technical assistance from the MDNR, and that large PWSs will probably need more than the estimated 12 hours to perform this task. EPA did an extensive, detailed, nation-wide cost analysis for the RTCR entitled: "Economic Analysis for the Proposed Revised Total Coliform Rule" (EPA 815-R-10-001). On page 7-9 in

Exhibit 7.5 "Annualized Cost Estimates for Rule Implementation" EPA estimates the national annualized cost for PWSs for rule implementation and administration to be $2.77 million. The ratio of the number of PWSs in Missouri (2717) versus those nationally (155,000) is 1.8%. Applying that ratio to the nation-wide costs results in a cost to Missouri PWSs of $49,860.

2. Revising Sample Siting Plans - The RTCR places more emphasis on protecting distribution water quality, ensuring samples are taken at locations that represent the whole distribution system, gives PWSs more flexibility on where repeat samples may be taken and emphasizes that dual purpose samples are allowed to count for both repeats and triggered source water samples. The 1989 TCR has required every PWS to have a sample siting plan describing where they take routine and repeat coliform samples. The 2006 GWR also requires one repeat sample following total coliform positive routine samples from a source water location to allow sampling raw water prior to any treatment if a system is not providing 4-log inactivation of viruses. The MDNR has been reviewing sampling plans routinely during inspections for many years. Therefore, MDNR estimates that only 20% of the PWSs will need to make comprehensive revisions. EPA estimates that it will take PWS an average of 4 hours to revise their sample plans. The labor costs will vary based on the size and type of the PWS. To help estimate the average cost MDNR used data from the latest Wage and Benefit Survey conducted by the Missouri Rural Water Association (MRWA). The 2013 survey included responses from 363 MRWA members representing municipalities, water districts and various other types of water systems. The average hourly wage of system managers, superintendents and office managers ranged from $14.72 to $20.32 per hour. In most cases, the person most familiar with the distribution system and the sample locations would be the superintendent or designated operator. The average salary of this job classification from the MRWA survey was $17.76 per hour.

3. Monitoring - In most States, PWSs have to contract directly with a lab or maintain their own certified lab to get their bacteriological testing done. In Missouri, the majority of the PWSs use the state lab system where there is no analytical charge for samples. The RTCR allows PWSs to transition into the new rule using the same sample frequency they are using currently as required by the 1989 TCR. Missouri currently requires monthly monitoring for all PWS types (community and noncommunity) and plan to continue monthly monitoring. Missouri firmly believes there is no substitute for more frequent testing and public health protection is better served with monthly sampling. Therefore, Missouri does not plan to implement the reduced monitoring options in the RTCR.

   There will be a slight cost saving due to reductions in additional monitoring requirements for GW systems serving 1,000 people or less. The 1989 TCR requirement to submit five routine samples the month following a total coliform positive routine sample for these small systems has been eliminated in the RTCR if they monitor monthly. The number of repeat samples will also be reduced for GW systems serving 1,000 people or less from four repeats to three. This is a non-issue for SW systems because Missouri requires them to do a minimum of five samples per month regardless of size. There will be no additional monitoring costs for PWSs due to the RTCR.

4. Annual Site Visits - An annual site visit would be required for a PWS to remain on a reduced monitoring schedule. A level 2 assessment or a sanitary survey can be substituted for an annual site visit. The MDNR plans on sticking to monthly monitoring for all PWS types, so there will be no PWS cost associated with this RTCR activity.

5. Assessments - The RTCR requires every PWS to assess their system when monitoring results shows a concern that contamination may be present. This treatment technique approach can trigger either a Level 1 assessment or a more detailed Level 2 assessment when the fecal indicator E. coli is detected. PWSs are not required to do assessments under the 1989 TCR, but some level of investigation is done that may or may not meet RTCR requirements.

The goal is that Level 1 assessments will be self-assessments performed by a PWS official onsite, at their system. The amount of time it will take a PWS to perform an assessment will vary by system size, with small systems needing less time than large ones. The labor rate will also vary with labor costing smaller systems less on the average than large systems. The PWS must complete the Level 1 assessment within 30 days of learning one has been triggered and submit a completed assessment form the state. The form must indicate what was assessed, whether any sanitary defects were identified, corrective actions completed or a proposed schedule for correcting any sanitary defects not corrected. Level 2 assessments basically look at the same elements of a Level 1 assessment, but each element is examined in greater detail. It would be a more detailed examination of the PWS, its monitoring process and results and its operational practices. The MDNR anticipates that the majority of the Level 2 assessments will be triggered in Missouri's smaller water systems and will necessitate technical assistance from MDNR staff to perform them. PWSs are also responsible for notifying MDNR when all corrective actions are completed.

Using Missouri TCR compliance data from calendar years 2011 through 2014 to estimate the number of assessments, the MDNR anticipates approximately 439 Level 1 assessments per year and 105 Level 2 assessments. Approximately 23 of the Level 2 assessments would be triggered by an acute MCL violation where E. coli is detected and 82 would result from having the non-acute situation of having two (2) Level 1 assessments in a rolling twelve (12) month period. The PWS staff person most likely to perform the assessment would be the superintendent or designated operator. Using the 2013 Wage and Benefit Survey information from MRWA, the average salary for this level of employee would be $17.76 per hour. As part of the supporting analysis for the RTCR rulemaking, EPA published a document in March 2009 entitled "Technology and Cost Document for the RTCR." Chapter four (4) of this document was dedicated to estimating the costs associated with performing assessments for PWSs nation-wide. On page 4-11 of this document EPA summarized the amount labor estimated for PWSs to perform assessments in Exhibit 4-5, "RTCR Labor Burden Estimate for Assessments done by noncommunity water systems serving 1,000 or less." MDNR chose to use these labor estimates because historically these types of systems in Missouri tend to accrue the most TCR violations. For Level 1 assessments EPA estimated the labor necessary to perform one would take about seven (7) hours. For a Level 2 assessment EPA estimated the labor for the nonacute situation would take about nine (9) hours, and those triggered by an acute MCL violation where E. coli is detected would take about twenty-one (21) hours.

Corrective Actions - PWSs are required by the RTCR to take corrective action anytime a Level 1 or Level 2 assessment identifies a sanitary defect. Some examples of the types of corrective actions anticipated include: flushing, sampler training, repair or replace distribution system components, maintaining adequate pressure, maintenance of appropriate hydraulic residence time, storage facility maintenance, the addition of disinfection to non-disinfecting systems, cross connection control, backflow prevention, addition or upgrading online monitoring and control, addition of security measures and development and implementation of an operations plan. The nature and magnitude of the impact the RTCR corrective actions will have on Missouri's PWSs can be expected to range from minimal costs associated with the simpler less involved Level 1 assessments that focus more on training or flushing to more expensive structural or technical issues found in Level 2 assessments. EPA did an extensive, detailed, nation-wide cost analysis for the RTCR entitled: "Economic Analysis for the Proposed Revised Total Coliform Rule" (EPA 815-R-10-001). EPA summarized the costs presented in the Economic Analysis in the final RTCR published February 13, 2013 in the Federal Register, Volume 78, No. 30. On page 10328 of the final rule EPA estimates the net increase in annualized costs to PWSs nation-wide for completing corrective actions for both the criteria used in the RTCR as published, and an alternative option EPA evaluated that required monthly monitoring. Because the more frequent monitoring frequency of monthly will result in more triggered assessments and therefore more corrective actions the corrective action costs are higher for the alternative option. Because

Missouri plans to continue to require monthly monitoring the estimated corrective action costs of $13.79 million for the alternative option was used in this analysis. The ratio of the number of PWSs in Missouri (2717) versus those nationally (155,000) is 1.8%. Applying this ratio to the national costs yields an estimated annual cost for corrective actions to Missouri systems of $248,220.

6. Public Notification - PWSs are already providing public notice for monitoring, reporting and MCL violations under the 1989 TCR. The majority of that cost is due to Tier 2 public notice for non-acute total coliform MCL violations. A significant reduction in costs for public notice is anticipated due to the elimination of the non-acute total coliform MCL violations under the RTCR. There are also several changes to the information required in the annual Consumer Confidence Reports including new health effects language for total coliforms and E. coli, the number of Level 1 and Level 2 assessments required and completed, the number of corrective actions required and completed, any treatment technique violations for failing to complete an assessment or failure to correct sanitary defects and if a PWS has an E. coli MCL violation they must list the cause of the violation. Since MDNR produces CCRs for all of the community PWSs in Missouri and posts them on the MDNR internet page to comply with EPA's customer distribution requirements there will be no additional cost to Missouri's PWS for this activity. In EPA's nation-wide cost analysis for the RTCR entitled: "Economic Analysis for the Proposed Revised Total Coliform Rule" (EPA 815-R-10-001) they estimated a net decrease in costs due to the savings for elimination of the non-acute TCR MCL violations.

7. There are 2717 active public water systems in the state of Missouri. Of that total 1094 or 40% are publicly owned.

FISCAL NOTE

PRIVATE COST

I. RULE NUMBER

Rule Number and Name	10 CSR 60-4.022 Revised Total Coliform Rule
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:
1623 privately-owned public water systems	Privately-owned public water systems	Estimated aggregate annual costs = $194,689 Estimated one-time costs = $43,752

III. Worksheet

Privately-owned Water System (POWS) Costs:

1. Administrative Costs - $49,860 X 60% = $29,916 (one-time costs)
2. Revising Site Sample Plans – 1623 POWSs X 20% X $17.76/hour X 4 hours X 60% = $13,836 (one-time costs)
3. Level 1 Assessments – 439 assessments per year X $17.76/hour X 7 hours x 60% – $32,746 (annual costs)
4. Level 2 Assessments (nonacute) – 82 assessments per year X $17.76/hour X 9 hours X 60% = $7,864 (annual costs)
5. Level 2 Assessments (acute) – 23 assessments per year X $17.76/hour X 21 hours X 60% = $5,147 (annual costs)
6. Corrective Actions - $248,220 X 60% = $148,932 (annual costs)

IV. Assumptions

Privately-owned Water System Costs:

1. Administrative Costs – Environmental Protection Agency (EPA) estimates that on average a POWS will need 4 hours to read and understand the Revised Total Coliform Rule (RTCR) and another 8 hours to plan implementation activities and assign staff. The RTCR applies to every POWS so the Missouri Department of Natural Resources (MDNR) anticipates that costs to small Transient Noncommuntiy systems will be minimal because they will wait for technical assistance from the MDNR, and that large POWSs will probably need more than the estimated 12 hours to perform this task. EPA did an extensive, detailed, nation-wide cost analysis for the RTCR entitled: "Economic Analysis for the Proposed Revised Total Coliform Rule" (EPA 815-R-10-001). On page 7-9 in Exhibit 7.5 "Annualized Cost Estimates for Rule Implementation" EPA estimates the national annualized cost for POWSs for rule implementation and administration to be $2.77 million. The ratio of the number of POWSs in Missouri (2717) versus those

nationally (155,000) is 1.8%. Applying that ratio to the nation-wide costs results in a cost to Missouri POWSs of $49,860.

2. Revising Sample Siting Plans - The RTCR places more emphasis on protecting distribution water quality, ensuring samples are taken at locations that represent the whole distribution system, gives POWSs more flexibility on where repeat samples may be taken and emphasizes that dual purpose samples are allowed to count for both repeats and triggered source water samples. The 1989 Total Coliform Rule (TCR) has required every POWS to have a sample siting plan describing where they take routine and repeat coliform samples. The 2006 GWR also requires one repeat sample following total coliform positive routine samples from a source water location to allow sampling raw water prior to any treatment if a system is not providing 4-log inactivation of viruses. The MDNR has been reviewing sampling plans routinely during inspections for many years. Therefore, MoDNR estimates that only 20% of the POWSs will need to make comprehensive revisions. EPA estimates that it will take POWS an average of 4 hours to revise their sample plans. The labor costs will vary based on the size and type of the POWS. To help estimate the average cost MoDNR used data from the latest Wage and Benefit Survey conducted by the Missouri Rural Water Association (MRWA). The 2013 survey included responses from 363 MRWA members representing municipalities, water districts and various other types of water systems. The average hourly wage of system managers, superintendents and office managers ranged from $14.72 to $20.32 per hour. In most cases, the person most familiar with the distribution system and the sample locations would be the superintendent or designated operator. The average salary of this job classification from the MRWA survey was $17.76 per hour.

3. Monitoring - In most States, POWSs have to contract directly with a lab or maintain their own certified lab to get their bacteriological testing done. In Missouri, the majority of the POWSs use the state lab system where there is no analytical charge for samples. The RTCR allows POWSs to transition into the new rule using the same sample frequency they are using currently as required by the 1989 TCR. Missouri currently requires monthly monitoring for all POWS types (community and noncommunity) and plan to continue monthly monitoring. Missouri firmly believes there is no substitute for more frequent testing and public health protection is better served with monthly sampling. Therefore, Missouri does not plan to implement the reduced monitoring options in the RTCR.

   There will be a slight cost saving due to reductions in additional monitoring requirements for Ground Water (GW) systems serving 1,000 people or less. The 1989 TCR requirement to submit five routine samples the month following a total coliform positive routine sample for these small systems has been eliminated in the RTCR if they monitor monthly. The number of repeat samples will also be reduced for GW systems serving 1,000 people or less from four repeats to three. This is a non-issue for Surface Water systems because Missouri requires them to do a minimum of five samples per month regardless of size. There will be no additional monitoring costs for POWSs due to the RTCR.

4. Annual Site Visits - An annual site visit would be required for a POWS to remain on a reduced monitoring schedule. A level 2 assessment or a sanitary survey can be substituted for an annual site visit. The MDNR plans on sticking to monthly monitoring for all POWS types, so there will be no POWS cost associated with this RTCR activity.

5. Assessments - The RTCR requires every POWS to assess their system when monitoring results shows a concern that contamination may be present. This treatment technique approach can trigger either a Level 1 assessment or a more detailed Level 2 assessment when the fecal indicator E. coli is detected. POWSs are not required to do assessments under the 1989 TCR, but some level of investigation is done that may or may not meet RTCR requirements.

The goal is that Level 1 assessments will be self-assessments performed by a POWS official onsite, at their system. The amount of time it will take a POWS to perform an assessment will vary by system size, with small systems needing less time than large ones. The labor rate will also vary with labor costing smaller systems less on the average than large systems. The POWS must complete the Level 1 assessment within 30 days of learning one has been triggered and submit a completed assessment form the state. The form must indicate what was assessed, whether any sanitary defects were identified, corrective actions completed or a proposed schedule for correcting any sanitary defects not corrected. Level 2 assessments basically look at the same elements of a Level 1 assessment, but each element is examined in greater detail. It would be a more detailed examination of the POWS, its monitoring process and results and its operational practices. The MDNR anticipates that the majority of the Level 2 assessments will be triggered in Missouri's smaller water systems and will necessitate technical assistance from MoDNR staff to perform them. POWSs are also responsible for notifying MoDNR when all corrective actions are completed.

Using Missouri TCR compliance data from calendar years 2011 through 2014 to estimate the number of assessments, the MDNR anticipates approximately 439 Level 1 assessments per year and 105 Level 2 assessments. Approximately 23 of the Level 2 assessments would be triggered by an acute Maximum Containment Level (MCL) violation where E. coli is detected and 82 would result from having the non-acute situation of having two (2) Level 1 assessments in a rolling twelve (12) month period. The POWS staff person most likely to perform the assessment would be the superintendent or designated operator. Using the 2013 Wage and Benefit Survey information from MRWA, the average salary for this level of employee would be $17.76 per hour. As part of the supporting analysis for the RTCR rulemaking, EPA published a document in March 2009 entitled "Technology and Cost Document for the RTCR." Chapter four (4) of this document was dedicated to estimating the costs associated with performing assessments for POWSs nation-wide. On page 4-11 of this document EPA summarized the amount labor estimated for POWSs to perform assessments in Exhibit 4-5, "RTCR Labor Burden Estimate for Assessments done by noncommunity water systems serving 1,000 or less." MoDNR chose to use these labor estimates because historically these types of systems in Missouri tend to accrue the most TCR violations. For Level 1 assessments EPA estimated the labor necessary to perform one would take about seven (7) hours. For a Level 2 assessment EPA estimated the labor for the nonacute situation would take about nine (9) hours, and those triggered by an acute MCL violation where E. coli is detected would take about twenty-one (21) hours.

Corrective Actions - POWSs are required by the RTCR to take corrective action anytime a Level 1 or Level 2 assessment identifies a sanitary defect. Some examples of the types of corrective actions anticipated include: flushing, sampler training, repair or replace distribution system components, maintaining adequate pressure, maintenance of appropriate hydraulic residence time, storage facility maintenance, the addition of disinfection to non-disinfecting systems, cross connection control, backflow prevention, addition or upgrading online monitoring and control, addition of security measures and development and implementation of an operations plan. The nature and magnitude of the impact the RTCR corrective actions will have on Missouri's POWSs can be expected to range from minimal costs associated with the simpler less involved Level 1 assessments that focus more on training or flushing to more expensive structural or technical issues found in Level 2 assessments. EPA did an extensive, detailed, nation-wide cost analysis for the RTCR entitled: "Economic Analysis for the Proposed Revised Total Coliform Rule" (EPA 815-R-10-001). EPA summarized the costs presented in the Economic Analysis in the final RTCR published February 13, 2013 in the Federal Register, Volume 78, No. 30. On page 10328 of the final rule EPA estimates the net increase in annualized costs to POWSs nation-wide for completing corrective actions for both the criteria used in the RTCR as published, and an alternative option EPA evaluated that required monthly monitoring. Because the more frequent monitoring frequency of monthly will result in more triggered assessments and therefore more corrective actions the corrective action costs are higher for the alternative option. Because

Missouri plans to continue to require monthly monitoring the estimated corrective action costs of $13.79 million for the alternative option was used in this analysis. The ratio of the number of POWSs in Missouri (2717) versus those nationally (155,000) is 1.8%. Applying this ratio to the national costs yields an estimated annual cost for corrective actions to Missouri systems of $248,220.

6. Public Notification - POWSs are already providing public notice for monitoring, reporting and MCL violations under the 1989 TCR. The majority of that cost is due to Tier 2 public notice for non-acute total coliform MCL violations. A significant reduction in costs for public notice is anticipated due to the elimination of the non-acute total coliform MCL violations under the RTCR. There are also several changes to the information required in the annual Consumer Confidence Reports including new health effects language for total coliforms and E. coli, the number of Level 1 and Level 2 assessments required and completed, the number of corrective actions required and completed, any treatment technique violations for failing to complete an assessment or failure to correct sanitary defects and if a POWS has an E. coli MCL violation they must list the cause of the violation. Since MoDNR produces CCRs for all of the community POWSs in Missouri and posts them on the MoDNR internet page to comply with EPA's customer distribution requirements there will be no additional cost to Missouri's POWS for this activity. In EPA's nation-wide cost analysis for the RTCR entitled: "Economic Analysis for the Proposed Revised Total Coliform Rule" (EPA 815-R-10-001) they estimated a net decrease in costs due to the savings for elimination of the non-acute TCR MCL violations.

7. There are 2717 active public water systems in the state of Missouri. Of that total 1623 or 60% are publicly owned.

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

PROPOSED AMENDMENT

10 CSR 60-4.025 Ground Water Rule Monitoring and Treatment Technique Requirements. The commission is amending subsection (3)(A).

PURPOSE: This amendment adopts revisions to the Total Coliform Rule (TCR) requirements for triggered source water monitoring. Very small ground water systems may use a repeat sample to meet the requirements of both the RTCR and this rule if the department approves the use of E. coli as a fecal indicator for source water monitoring and approves the use of a single sample for meeting both the triggered source water monitoring requirements and the repeat monitoring requirements in the RTCR.

(3) Ground Water Source Microbial Monitoring.

(A) Triggered Source Water Monitoring.

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

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

B. The system is notified that a sample collected under 10 CSR 60-4.020(1) is total coliform-positive and the sample is not invalidated under 10 CSR 60-4.020(3) **until March 31, 2016; or**

C. The system is notified that a sample collected under 10 CSR 60-4.022(4)-(7) is total coliform-positive and the sample is not invalidated under 10 CSR 60-4.022(3)(C), beginning April 1, 2016.

2. Sampling requirements. A ground water system must collect, within twenty-four (24) hours of notification of the total coliform-positive sample, at least one (1) ground water source sample from each ground water source in use at the time the total coliform-positive sample was collected under 10 CSR 60-4.020(1), **until March 31, 2016, or collected under 10 CSR 60-4.022(4)-(7) beginning April 1, 2016,** except as provided in subparagraph (3)(A)2.B. of this rule.

A. The department may extend the twenty-four (24)*[-]* hour time limit on a case-by-case basis if the system cannot collect the ground water source water sample within twenty-four (24) hours due to circumstances beyond its control. In the case of an extension, the department will specify how much time the system has to collect the sample.

B. If approved by the department, systems with more than one (1) ground water source may meet the requirements of this subparagraph by sampling a representative ground water source or sources. If directed by the department, systems must submit for department approval a triggered source water monitoring plan that identifies one (1) or more ground water sources that are representative of each monitoring site in the system's sample siting plan under 10 CSR 60-4.020(1) **until March 31, 2016, or under 10 CSR 60-4.022(3) beginning April 1, 2016,** and that the system intends to use for representative sampling for triggered source water monitoring.

C. *[A]* **Until March 31, 2016, a** ground water system serving one thousand (1,000) people or fewer may use a repeat sample collected from a ground water source to meet both the requirements of 10 CSR 60-4.020(2) and to satisfy the monitoring requirements of this section (3) for that ground water source only if the department approves the use of *E. coli* as a fecal indicator for source water monitoring under this subsection (3)(A). If the repeat sample collected from the ground water source is *E. coli* positive, the system must comply with the additional requirements in paragraph (3)(A)3. of this rule.

D. Beginning April 1, 2016, a ground water system serving one thousand (1,000) or fewer people may use a repeat sample collected from a ground water source to meet both the requirements of 10 CSR 60-4.022 and to satisfy the monitoring requirements of paragraph (3)(A)2. of this rule for that ground water source only if the department approves the use of *E. coli* as a fecal indicator for source water monitoring under this subsection (3)(A) and approves the use of a single sample for meeting both the triggered source water monitoring requirements in this subsection (3)(A) and the repeat monitoring requirements in 10 CSR 60-4.022(8). If the repeat sample collected from the ground water source is *E. coli* positive, the system must comply with paragraph (3)(A)3. of this rule.

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

4. Consecutive systems. In addition to the other requirements of this subsection (3)(A), a consecutive ground water system that has a total coliform-positive sample collected under 10 CSR 60-4.020(1) **until March 31, 2016, or under 10 CSR 60-4.022(4)-(7) beginning April 1, 2016,** must notify the wholesale system(s) within twenty-four (24) hours of being notified of the total coliform-positive sample.

5. Wholesale systems. In addition to the other requirements of this subsection (3)(A), a wholesale ground water system that receives notice from a consecutive system it serves that a sample collected under 10 CSR 60-4.020(1) **until March 31, 2016, or collected under 10 CSR 60-4.022(4)-(7) beginning April 1, 2016,** is total coliform-positive must, within twenty-four (24) hours of being notified, collect a sample from its ground water source(s) under paragraph (3)(A)2.of this rule and analyze it for a fecal indicator under subsection (3)(C) of this rule. If this sample is fecal indicator-positive, the system must notify all consecutive systems served by that ground water source of the fecal indicator source water positive within twenty-four (24) hours of being notified of the monitoring result and must meet the requirements of paragraph (3)(A)3. of this rule.

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

A. The department determines, and documents in writing, that the total coliform-positive sample collected under 10 CSR 60-4.020(1) **until March 31, 2016, or under 10 CSR 60-4.022(4)-(7) beginning April 1, 2016,** is caused by a distribution system deficiency; or

B. The total coliform-positive sample collected under 10 CSR 60-4.020(1) **until March 31, 2016, or under 10 CSR 60-4.022(4)-(7) beginning April 1, 2016,** is collected at a location that meets department criteria for distribution system conditions that will cause total coliform-positive samples.

*AUTHORITY: section 640.100, RSMo Supp. [2009] **2014**. Original rule filed April 14, 2010, effective Dec. 30, 2010. Amended: Filed Aug. 12, 2015.*

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 OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Safe Drinking Water Commission will hold a public

hearing on this proposed amendment at 10:00 a.m. on October 16, 2015 at the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri. Any interested person may comment during the public hearing in support of or in opposition to the proposed amendment. Written comments postmarked or received by October 19, 2015 will also be accepted. Written comments must be mailed to: Scott Weckenborg, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102, or hand-delivered to the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri.

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

PROPOSED AMENDMENT

10 CSR 60-4.055 Disinfection Requirements. The commission is amending subsection (4)(E).

PURPOSE: This amendment adopts the Revised Total Coliform Rule (RTCR) 78 Federal Register 10269 requirement for all public water systems that use chlorine or chloramines to measure the residual disinfectant level in the distribution system at the same point and same time as total coliforms are sampled.

(4) The residual disinfectant concentration in the distribution system measured as total chlorine or combined chlorine cannot be less than 0.2 mg/*[l]***L** in more than five percent (5%) of the samples each month for any two (2) consecutive months that the system supplies water to the public.

(E) *[The]* **Until March 31, 2015, the** residual disinfectant concentration must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled as specified in 10 CSR 60-4.020. **Beginning April 1, 2016, public water systems that use chlorine or chloramines must measure the residual disinfectant level in the distribution system at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in 10 CSR 60-4.022(4)-(8).** Failure to comply with this subsection is a monitoring violation which requires public notification as specified in 10 CSR 60-8.010.

*AUTHORITY: section 640.100, RSMo Supp. [2002] **2014**. Original rule filed July 12, 1991, effective Feb. 6, 1992. For intervening history, please consult the **Code of State Regulations**. Amended: Filed Aug. 12, 2015.*

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 OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Safe Drinking Water Commission will hold a public hearing on this proposed amendment at 10:00 a.m. on October 16, 2015 at the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri. Any interested person may comment during the public hearing in support of or in opposition to the proposed amendment. Written comments postmarked or received by October 19, 2015 will also be accepted. Written comments must be mailed to: Scott Weckenborg, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102, or hand-delivered to the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri.

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 60—Safe Drinking Water Commission
Chapter 5—Laboratory and Analytical Requirements

PROPOSED AMENDMENT

10 CSR 60-5.010 Acceptable and Alternate Procedures for Analysis. The commission is amending section (3).

PURPOSE: This proposed amendment updates the incorporation by reference of analytical methods for analysis of drinking water samples.

(3) Microbiological Contaminants and Turbidity. Unless substitute methods are approved by *[the]* EPA, analysis shall be conducted in accordance with the microbiological contaminant and turbidity analytical methods in 40 CFR 141.21(f), 40 CFR 141.74(a)(1), *[and]* 40 CFR 141.704(a)**, and 40 CFR 141.852** of the *[July 1, 2011]* **Feb. 26, 2014**, *Code of Federal Regulations*, which are incorporated by reference. This does not include later amendments or additions. The *Code of Federal Regulations* is published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401 and is available by calling toll-free (866) 512-1800 or going to http://bookstore.gpo.gov.

*AUTHORITY: section 640.100, RSMo Supp. [2011] **2014**, and section 640.125.1., RSMo 2000. Original rule filed May 4, 1979, effective Sept. 14, 1979. For intervening history, please consult the **Code of State Regulations**. Amended: Filed Aug. 12, 2015.*

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 OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Safe Drinking Water Commission will hold a public hearing on this proposed amendment at 10:00 a.m. on October 16, 2015 at the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri. Any interested person may comment during the public hearing in support of or in opposition to the proposed amendment. Written comments postmarked or received by October 19, 2015 will also be accepted. Written comments must be mailed to: Scott Weckenborg, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102, or hand-delivered to the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri.

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 60—Safe Drinking Water Commission
Chapter 7—Reporting

PROPOSED AMENDMENT

10 CSR 60-7.010 Reporting Requirements. The commission is adding section (12).

PURPOSE: This amendment adopts the revisions to the Total Coliform Rule (TCR) with the reporting requirements of the Revised Total Coliform Rule (RTCR), 78 Federal Register 10269. The Department of Natural Resources (DNR) must be notified of E. coli maximum contaminant level violations and coliform treatment technique violations by the end of the business day unless certain extenuating circumstances apply. A system must perform a required assessment within thirty (30)

days and must report corrective actions to DNR. Failure to comply with coliform monitoring must be reported within ten (10) days. Seasonal systems must certify compliance with start-up procedures.

(12) Reporting Requirements for the Revised Total Coliform Rule.

(A) *E. coli*.

1. A system must notify the department by the end of the day when the system learns of an *E. coli* MCL violation, unless the system learns of the violation after the department office is closed and the department does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the department before the end of the next business day, and notify the public in accordance with 10 CSR 60-8.010.

2. A system must notify the department by the end of the day when the system is notified of an *E. coli*-positive routine sample, unless the system is notified of the result after the department office is closed and the department does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the department before the end of the next business day.

(B) A system that has violated the treatment technique for coliforms in 10 CSR 60-4.022(9) must report the violation to the department no later than the end of the next business day after it learns of the violation, and notify the public in accordance with 10 CSR 60-8.010.

(C) A system required to conduct an assessment under the provisions of 10 CSR 60-4.022(9) must submit the assessment report to the department within thirty (30) days. The system must notify the department in accordance with 10 CSR 60-4.022(9) when each scheduled corrective action is completed for corrections not completed by the time of submission of the assessment form.

(D) A system that has failed to comply with a coliform monitoring requirement must report the monitoring violation to the department within ten (10) days after the system discovers the violation and notify the public in accordance with 10 CSR 60-8.010.

(E) A seasonal system must certify to the department, prior to serving water to the public, that it has complied with the department-approved start-up procedure.

*AUTHORITY: section 640.100, RSMo Supp. [2009] **2014**. Original rule filed May 4, 1979, effective Sept. 14, 1979. For intervening history, please consult the **Code of State Regulations**. Amended: Filed Aug. 12, 2015.*

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 OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Safe Drinking Water Commission will hold a public hearing on this proposed amendment at 10:00 a.m. on October 16, 2015 at the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri. Any interested person may comment during the public hearing in support of or in opposition to the proposed amendment. Written comments postmarked or received by October 19, 2015 will also be accepted. Written comments must be mailed to: Scott Weckenborg, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102, or hand-delivered to the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri.

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 60—Safe Drinking Water Commission
Chapter 8—Public Notification

PROPOSED AMENDMENT

10 CSR 60-8.010 Public Notification of Conditions Affecting a Public Water Supply. The commission is amending subsections (2)(A), (3)(B) and (C), (4)(A), and (11)(A).

PURPOSE: This amendment adds Revised Total Coliform Rule (RTCR) requirements to Tier 1 and Tier 2 public notice as applicable. Tier 1 notice is required for violation of the E. coli maximum contaminant level (MCL). Tier 2 public notice must be repeated every three months for RTCR MCL and treatment technique violations as long as the violation or situation persists.

(2) Tier 1 Public Notice.

(A) Violation Categories and Other Situations Requiring a Tier 1 Public Notice.

1. Tier 1 public notice is required for violations or other situations with significant potential to have serious adverse effects on human health as a result of short-term exposure.

2. Specific violations and other situations requiring Tier 1 notice include:

A. Violation of the MCL for total coliforms when fecal coliform or *E. coli* are present in the water distribution system **as specified in 10 CSR 60-4.020(7)(B) until March 31, 2016**, *[or]* when the water system fails to test for fecal coliforms or *E. coli* when any repeat sample tests positive for coliform **as specified in 10 CSR 60-4.020(5)(A) until March 31, 2016**; **or violation of the MCL for *E. coli* as specified in 10 CSR 60-4.020(7)(C) beginning April 1, 2016**;

B. Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, or when the water system fails to take a confirmation sample within twenty-four (24) hours of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL;

C. Exceedance of the nitrate MCL by non-community water systems where permitted by the department to exceed the MCL;

D. Violation of the MRDL for chlorine dioxide, when one (1) or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system, exceed the MRDL, or when the water system does not take the required samples in the distribution system;

E. Violation of the maximum turbidity level where the sample results exceed five (5) nephelometric turbidity units (NTU);

F. Violation of a treatment technique requirement pursuant to 10 CSR 60-4.050 resulting from a single exceedance of the maximum allowable turbidity limit, where the department determines after consultation that the violation has significant potential to have serious adverse effects on human health or where the system fails to consult with the department within twenty-four (24) hours after the system learns of the violation;

G. Occurrence of a waterborne disease outbreak or other waterborne emergency (such as failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination);

H. Detection of *E. coli*, enterococci, or coliphage in source water samples as specified in 10 CSR 60-4.025(3)(A) and 10 CSR 60-4.025(3)(B); and

I. Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the department either in regulation or on a case-by-case basis.

(3) Tier 2 Public Notice.

(B) Timing of Tier 2 Public Notice.

1. Public water systems must provide the public notice as soon as possible, but not later than thirty (30) days after the system learns of the violation. If the public notice is posted, the notice must remain in place for as long as the violation or situation persists, but in no case for less than seven (7) days, even if the violation or situation is resolved. The department may, in appropriate circumstances, allow additional time for the initial notice of up to three (3) months from the date the system learns of the violation. The department will not grant an extension to the thirty- (30-)*[-]* day deadline for any unresolved violation or provide across-the-board extensions for other violations or situations requiring a Tier 2 public notice. Extensions granted by the department will be in writing.

2. The public water system must repeat the notice every three (3) months as long as the violation or situation persists, unless the department determines that appropriate circumstances warrant a different repeat notice frequency. In no circumstance may the repeat notice be given less frequently than once per year. The department will not allow less frequent repeat notice for an MCL violation pursuant to 10 CSR 60-4.020 **or 10 CSR 60-4.022** or a treatment technique violation pursuant to 10 CSR 60-4.050 **or 10 CSR 60-4.052**. The department will not allow across-the-board reductions in the repeat notice frequency for other ongoing violations requiring a Tier 2 repeat notice. The department's determinations allowing repeat notices to be given less frequently than once every three (3) months will be in writing.

3. For violations of the maximum turbidity level and for violations of the treatment technique requirements pursuant to 10 CSR 60-4.050 resulting from a single exceedance of the maximum allowable turbidity limit, public water systems must consult with the department as soon as practical but no later than twenty-four (24) hours after the public water system learns of the violation to determine whether a Tier 1 public notice is required to protect public health. When consultation does not take place within the twenty-four (24)*[-]* hour period, the water system must distribute a Tier 1 notice of the violation within the next twenty-four (24) hours (that is, no later than forty-eight (48) hours after the system learns of the violation).

(C) Form and Manner of Tier 2 Public Notice. Public water systems must provide the initial public notice and any repeat notices in a form and manner reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system but must**,** at a minimum**,** meet the following requirements:

1. Unless directed otherwise by the department in writing, community water systems must provide notice by:

A. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

B. Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by mail or direct delivery. Such persons may include those who do not pay water bills or do not have service connection addresses (*[for example]* **e.g.**, house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). These other methods may include: *[P]***p**ublication in a local newspaper or newsletter; delivery of multiple copies for distribution by customers that provide their drinking water to others; posting in public places served by the system or on the Internet; or delivery to community organizations.

2. Unless directed otherwise by the department in writing, noncommunity water systems must provide notice by:

A. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

B. Any other method reasonably calculated to reach other persons served by the system if they would not normally be reached by posting in a conspicuous location, mail, or direct delivery. Such persons include those served who may not see a posted notice because the posted notice is not in a location they routinely pass by. These other methods may include: *[P]***p**ublication in a local newspaper or newsletter distributed to customers; use of e-mail to notify employees or students; or delivery of multiple copies in central locations (*[for example]* **e.g.**, community centers).

(4) Tier 3 Public Notice.

(A) Violation Categories and Other Situations Requiring a Tier 3 Public Notice.

1. Tier 3 public notice is required for all other violations and situations not included in Tier 1 and Tier 2.

2. Specific violations and other situations requiring Tier 3 public notice include:

A. Monitoring violations or failure to comply with a testing procedure, except where a Tier 1 notice is specifically required or where the department determines that a Tier 2 notice is required, for the following: microbiological contaminants; inorganic contaminants (IOCs); synthetic organic contaminants (SOCs); volatile organic contaminants (VOCs); radiological contaminants; disinfection byproducts, byproduct precursors, and disinfectant residuals; treatment techniques for lead*[,]* and copper. Specific exceptions are listed under sections (2) and (3) of this rule;

B. Operation under a variance or exemption;

C. Exceedance of the fluoride SMCL; *[and]*

D. Reporting and recordkeeping violations under 10 CSR 60-4.022, 10 CSR 60-7.010(12), and 10 CSR 60-9.010(4)-(5); and

*[D.]***E.** Other violations or situations determined by the department either in regulation or on a case-by-case basis.

(11) Standard Health Effects Language for Public Notification.

(A) Microbiological Contaminants.

1. Total Coliform. **Until March 31, 2016,** "Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems." **Beginning April 1, 2016, "Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in the water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments."**

2. *[Fecal coliform/] E. coli*. **Until March 31, 2016,** "Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these waters can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems." **Beginning April 1, 2016, "*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems."**

3. Fecal indicators under the Ground Water Rule (*E. coli*, enterococci, coliphage). "Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these waters can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems."

4. Treatment technique violations under the Ground Water Rule. "Inadequately treated or inadequately protected water may contain

disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches."

5. Revised Total Coliform Rule Treatment Technique violations for Coliform Assessment and/or Corrective Action. "Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found.

{THE SYSTEM MUST USE THE FOLLOWING APPLICABLE SENTENCES.}

We failed to conduct the required assessment.

We failed to correct all identified sanitary defects that were found during the assessment(s)."

6. Revised Total Coliform Rule Treatment Technique violations for *E. coli* Assessment and/or Corrective Action. "*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We violated the standard for *E. coli*, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found.

{THE SYSTEM MUST USE THE FOLLOWING APPLICABLE SENTENCES.}

We failed to conduct the required assessment.

We failed to correct all identified sanitary defects that were found during the assessment that we conducted."

7. Revised Total Coliform Rule Seasonal System Treatment Technique violations. When this violation includes the failure to monitor for total coliforms or *E. coli* prior to serving water to the public, the mandatory language found at 10 CSR 60-8.010(5)(D)2. must be used. When this violation includes failure to complete other actions, the appropriate elements found in 10 CSR 60-8.010(5)(A) to describe the violation must be used.

*[5.]***8.** Turbidity. "Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

*AUTHORITY: section 640.100, RSMo Supp. [2009] **2014**. Original rule filed May 4, 1979, effective Sept. 14, 1979. For intervening history, please consult the **Code of State Regulations**. Amended: Filed Aug. 12, 2015.*

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 OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Safe Drinking Water Commission will hold a public hearing on this proposed amendment at 10:00 a.m. on October 16, 2015 at the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri. Any interested person may comment during the public hearing in support of or in opposition to the proposed amendment. Written comments postmarked or received by October 19, 2015 will also be accepted. Written comments must be mailed to: Scott Weckenborg, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102, or hand-delivered to the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri.

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 60—Safe Drinking Water Commission
Chapter 8—Public Notification

PROPOSED AMENDMENT

10 CSR 60-8.030 Consumer Confidence Reports. The commission is amending subsections (2)(C)–(D) and (2)(H), Appendix A, Appendix B, and Appendix C.

PURPOSE: This amendment adopts Revised Total Coliform Rule (RTCR) requirements for Consumer Confidence Reports (CCR). The CCR must include definitions of Level 1 and Level 2 assessments. For fecal coliform and E. coli the CCR must include the highest contaminant level used to determine compliance and the range of detected levels. The amendment includes standard language from the RTCR that must be used for reporting on Level 1 and Level 2 assessments. The amendment also adopts Ground Water Rule requirements for reporting uncorrected significant deficiencies.

(2) Content of the Reports.

(C) Definitions.

1. Each report must include the following definitions:

A. Maximum contaminant level goal or MCLG—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety; and

B. Maximum contaminant level or MCL—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

2. A report for a community water system operating under a variance or an exemption issued under 10 CSR 60-6.010 or 10 CSR 60-6.020 must include the following definition—Variances and exemptions—State permission not to meet an MCL or a treatment technique under certain conditions.

3. A report that contains data on a contaminant that the department regulates using the following terms must use the following definitions as applicable:

A. Treatment technique—A required process intended to reduce the level of a contaminant in drinking water;

B. Action level—The concentration of a contaminant which, if exceeded, triggers treatment or other requirements with which a water system must comply;

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

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

4. A report that contains information regarding a Level 1 or Level 2 Assessment required under 10 CSR 60-4.022 must include the applicable definitions:

A. Level 1 Assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

B. Level 2 Assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has

occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

(D) Information on Detected Contaminants.

1. Subsection (2)(D) specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring (except *Cryptosporidium*). It applies to—

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

B. Contaminants for which monitoring is required by 10 CSR 60-4.110 (unregulated contaminants); and

C. Disinfection by-products or microbial contaminants for which monitoring is required by 40 CFR 141.142 and 141.143, except as provided under paragraph (2)(E)1. of this rule, and which are detected in the finished water.

2. The data relating to these contaminants must be displayed in one (1) table or in several adjacent tables. Any additional monitoring results which a community water system chooses to include in its report must be displayed separately.

3. The data must be derived from data collected to comply with the Environmental Protection Agency and department monitoring and analytical requirements during the previous calendar year except that—

A. Where a system is allowed to monitor for regulated contaminants less often than once a year, the table(s) must include the date and results of the most recent sampling and the report must include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. The system may use the following language or similar language for their statement: "The state has reduced monitoring requirements for certain contaminants to less often than once per year because the concentrations of these contaminants are not expected to vary significantly from year-to-year. Some of our data (e.g., for organic contaminants), though representative, is more than one (1) year old." No data older than five (5) years need be included.

B. Results of monitoring in compliance with 40 CFR 141.142 and 141.143 need only be included for five (5) years from the date of last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

4. For detected regulated contaminants (listed in Appendix A, included herein), the table(s) must contain—

A. The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in Appendix A, included herein);

B. The MCLG for that contaminant expressed in the same units as the MCL;

C. If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level applicable to that contaminant, and the report must include the definitions for treatment technique and/or action level, as appropriate, specified in paragraph (2)(C)3. of this rule;

D. For contaminants subject to an MCL, except turbidity**,** *[and]* total *[coliforms]* **coliform, fecal coliform and *E. coli***, the highest contaminant level used to determine compliance with 10 CSR 60-4.030; 10 CSR 60-4.040; 10 CSR 60-4.060; 10 CSR 60-4.090; 10 CSR 60-4.100 and the range of detected levels, as follows (when rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Appendix A, included herein):

(I) When compliance with the MCL is determined annually or less frequently—the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL;

(II) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a monitoring location—the highest average of any of the monitoring locations and the range of all monitoring locations expressed in the same units as the MCL. For the MCLs for total trihalomethanes (TTHM) and haloacetic acids 5 (HAA5) in 10 CSR 60-4.090(1)(D), systems must include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If more than one (1) location exceeds the TTHM or HAA5 MCL, the system must include the locational running annual averages for all locations that exceed the MCL; and

(III) When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all samples at all monitoring locations—the average and range of detection expressed in the same units as the MCL. The system is required to include individual sample results for the Initial Distribution System Evaluation (IDSE) conducted under 10 CSR 60-4.092 when determining the range of TTHM and HAA5 results to be reported in the annual consumer confidence report for the calendar year that the IDSE samples were taken;

E. For turbidity, the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in 10 CSR 60-4.050.

(I) The report should include an explanation of the reasons for measuring turbidity, such as: "Turbidity is a measure of the cloudiness of water. We monitor turbidity because it is a good indicator of the effectiveness of our filtration system."

(II) If an explanation of the reasons for measuring turbidity is included, it does not have to be included in the table but may be added as a footnote or narrative associated with the table;

F. For lead and copper, the ninetieth percentile value of the most recent round of sampling, the number of sampling sites exceeding the action level in that round, and the most recent source water results;

G. For total coliform **analytical results until March 31, 2016**.

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

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

H. For fecal coliform *[or]* **and** *E. coli*, **until March 31, 2016,** the total number of positive compliance samples; *[and]*

I. The likely source(s) of detected regulated contaminants to the best of the operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the operator. If the operator lacks specific information on the likely source, the report must include one (1) or more of the typical sources for that contaminant which are most applicable to the system. The typical sources for a given contaminant are listed in Appendix B, included herein*[.]***; and**

J. For *E. coli* analytical results under 10 CSR 60-4.022, the total number of positive samples.

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

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

7. For detected unregulated contaminants for which monitoring is required (except *Cryptosporidium*), the table(s) must contain the

average and range at which the contaminant was detected. When detects of unregulated contaminants are reported, the report may include a brief explanation of the reasons for monitoring for unregulated contaminants using language such as: "Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. Information on all the contaminants that were monitored for, whether regulated or unregulated, can be obtained from this water system or the Department of Natural Resources."

(H) Additional Information.

1. The report must contain a brief explanation regarding contaminants which may reasonably be expected to be found in drinking water, including bottled water. The report must include the language of subparagraph (2)(H)1.A. of this rule. This explanation must also include the information contained in subparagraphs (2)(H)1.B.–D. of this rule using this language or comparable language.

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

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

C. "Contaminants that may be present in source water include:

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

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

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

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

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

D. "In order to ensure that tap water is safe to drink, the Department of Natural Resources prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Department of Health and Senior Services regulations establish limits for contaminants in bottled water which must provide the same protection for public health."

2. The report must include the telephone number of the owner, operator, or designee of the community water system as a source of additional information concerning the report.

3. In communities with a large proportion of non-English speaking residents, as determined by the department, the report must contain information in the appropriate language(s) regarding the importance of the report. The report may use a notice based on the following wording: "This report contains very important information about your drinking water. Translate it or speak with someone who understands it." The report may also contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

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

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

6. Systems required to comply with the Ground Water Rule.

A. Any ground water system that receives notice from the department of a significant deficiency or notice from a laboratory of a fecal indicator-positive ground water source sample that is not invalidated by the department under 10 CSR 60-4.025(3)(D) must inform its customers of any significant deficiency that is uncorrected or of any fecal indicator-positive ground water source sample in the next report. The system must continue to inform the public annually until the department determines that the significant deficiency is corrected or the fecal contamination in the ground water source is addressed under 10 CSR 60-4.025(4)(A). Each report must include the following:

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

(II) If the fecal contamination in the ground water source has been addressed under 10 CSR 60-4.025(4)(A) and the date of such action;

(III) For each significant deficiency or fecal contamination in the ground water source that has not been addressed under 10 CSR 60-4.025(4)(A), the department-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed; and

(IV) If the system receives notice of a fecal indicator-positive ground water source sample that is not invalidated by the department under 10 CSR 60-4.025(3)(D), the potential health effects using the health effects language of Appendix C of this rule.

B. If directed by the department, a system with significant deficiencies that have been corrected before the next Consumer Confidence Report is issued must inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction under subparagraph (2)(H)6.A. of this rule.

7. Systems required to comply with 10 CSR 60-4.022.

A. Any system required to comply with the Level 1 assessment requirement or a Level 2 assessment requirement that is not due to an *E. coli* MCL violation must include in the report the text found in parts (2)(H)7.A.(I)-(III) of this rule as appropriate, filling in the blanks accordingly and the text found in parts (2)(H)7.A.(I) and (II) of this rule if appropriate.

(I) Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

(II) During the past year we were required to conduct {INSERT NUMBER OF LEVEL 1 ASSESSMENTS} Level 1 assessment(s). {INSERT NUMBER OF LEVEL 1 ASSESSMENTS} Level 1 assessment(s) were completed. In addition, we were required to take {INSERT NUMBER OF CORRECTIVE ACTIONS} corrective actions and we completed {INSERT NUMBER OF CORRECTIVE ACTIONS} of these actions.

(III) During the past year {INSERT NUMBER OF LEVEL 2 ASSESSMENTS} Level 2 assessments were required to be completed for our water system. {INSERT NUMBER OF LEVEL 2 ASSESSMENTS} Level 2 assessments were completed. In addition, we were required to take {INSERT NUMBER OF CORRECTIVE ACTIONS} corrective actions and we completed

{INSERT NUMBER OF CORRECTIVE ACTIONS} of these actions.

(IV) Any system that has failed to complete all the required assessments or correct all identified sanitary defects, is in violation of the treatment technique requirement and must also include one (1) or both of the following statements, as appropriate:

(a) During the past year we failed to conduct all of the required assessment(s).

(b) During the past year we failed to correct all identified defects that were found during the assessment.

B. Any system required to conduct a Level 2 assessment due to an *E. coli* MCL violation must include in the report the text found in parts (2)(H)7.B.(I) and (II) of this rule, filling in the blanks accordingly and the text found in subparts (2)(H)7.B.(III) (a) and (b) of this rule, if appropriate.

(I) *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

(II) We were required to complete a Level 2 assessment because we found *E. coli* in our water system. In addition, we were required to take {INSERT NUMBER OF CORRECTIVE ACTIONS} corrective actions and we completed {INSERT NUMBER OF CORRECTIVE ACTIONS} of these actions.

(III) Any system that has failed to complete the required assessment or correct all identified sanitary defects, is in violation of the treatment technique requirement and must also include one (1) or both of the following statements, as appropriate:

(a) We failed to conduct the required assessment.

(b) We failed to correct all sanitary defects that were identified during the assessment that we conducted.

C. If a system detects *E. coli* and has violated the *E. coli* MCL, in addition to completing the table as required in paragraph (2)(D)4. of this rule, the system must include one (1) or more of the following statements to describe any noncompliance, as applicable:

(I) We had an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

(II) We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

(III) We failed to take all required repeat samples following an *E. coli*-positive routine sample.

(IV) We failed to test for *E. coli* when any repeat sample tests positive for total coliform.

D. If a system detects *E. coli* and has not violated the *E. coli* MCL, in addition to completing the table as required in paragraph (2)(D)4., the system may include a statement that explains that although they have detected *E. coli*, they are not in violation of the *E. coli* MCL.

Appendix A to 10 CSR 60-8.030
Converting MCL Compliance Values for Consumer Confidence Reports

Key

AL = Action Level
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
MFL = million fibers per **/**//**L**iter
mrem/year = millirems per year (a measure of radiation absorbed by the body)
NTU = Nephelometric Turbidity Units
pCi/L = picocuries per **/**//**L**iter (a measure of radioactivity)
ppm = parts per million, or milligrams per **/**//**L**iter (mg/L)
ppb = parts per billion, or micrograms per **/**//**L**iter (μg/L)
ppt = parts per trillion, or nanograms per **/**//**L**iter
ppq = parts per quadrillion, or picograms per **/**//**L**iter
TT = Treatment Technique

Contaminant	**MCL in compliance units (mg/L)**	**Multiply by**	**MCL in CCR units**	**MCLG in CCR units**
Microbiological Contaminants				
1. Total Coliform Bacteria ***Until March 31, 2016.**	(Systems that collect 40 or more samples per month) ≥5% of monthly samples are positive; (systems that collect fewer than 40 samples per month) 1 positive monthly sample.		(Systems that collect 40 or more samples per month) ≥5% of monthly samples are positive; (systems that collect fewer than 40 samples per month) 1 positive monthly sample.	0
---------- **Total Coliform Bacteria** ***Beginning April 1, 2016.**	---------- **TT**	----------	---------- **TT**	---------- **0**
2**.** Fecal coliform and *E. coli*. ***Until March 31, 2016.**	0		A routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive.	0
---------- ***E. coli*.** ***Beginning April 1, 2016.**	---------- **Routine and repeat samples are total coliform – positive and either is *E coli* – positive or system fails to take repeat samples following *E coli*- positive routine sample or system fails to analyze total coliform – positive repeat sample for *E coli*.**	----------	---------- **Routine and repeat samples are total coliform – positive and either is *E coli* – positive or system fails to take repeat samples following *E coli*- positive routine sample or system fails to analyze total coliform – positive repeat sample for *E coli.***	---------- **0**
3. Total organic carbon (ppm)	TT		TT	N/A
4. Turbidity	TT		TT (NTU)	N/A
5. Fecal TT Indicators (enterococci or coliphage)	TT			N/A
Radioactive Contaminants				
6. Beta/photon emitters	4 mrem/yr		4 mrem/yr	0
7. Alpha emitters	15 pCi/L		15 pCi/L	0
8. Combined radium	5 pCi/L		5 pCi/L	0
9. Uranium (pCi/L)	30µg/L		30	0
Inorganic Contaminants				
10. Antimony	**0**.006	1000	6 ppb	6
11. Arsenic	0.05* 0.010**	1000	50 ppb* 10 ppb**	N/A* 0**
*These arsenic values are effective until Jan. 23, 2006. **These arsenic values are effective Jan. 23, 2006.				

12. Asbestos	7 MFL		7 MFL	7
13. Barium	2		2 ppm	2
14. Beryllium	0.004	1000	4 ppb	4
15. Bromate (ppb)	0.010	1000	10	0
16. Cadmium	0.005	1000	5 ppb	5
17. Chloramines (ppm)	MRDL=4		MRDL=4	4
18. Chlorine (ppm)	MRDL=4		MRDL=4	4
19. Chlorine dioxide (ppb)	MRDL=**0**.8	1000	MRDL=**0**.8	800
20. Chlorite (ppm)	1		1	0.8
21. Chromium	0.1	1000	100 ppb	100
22. Copper	AL=1.3		AL=1.3 ppm	1.3
23. Cyanide	0.2	1000	200 ppb	200
24. Fluoride	4		4 ppm	4
25. Lead	AL=**0**.015	1000	AL=15 ppb	0
26. Mercury (inorganic)	0.002	1000	2 ppb	2
27. Nitrate (as Nitrogen)	10		10 ppm	10
28. Nitrite (as Nitrogen)	1		1 ppm	1
29. Selenium	0.05	1000	50 ppb	50
30. Thallium	0.002	1000	2 ppb	0.5
Synthetic Organic Contaminants Including Pesticides and Herbicides				
31. 2,4-D	0.07	1000	70 ppb	70
32. 2,4,5-TP [Silvex]	0.05	1000	50 ppb	50
33. Acrylamide			TT	0
34. Alachlor	0.002	1000	2 ppb	0
35. Atrazine	0.003	1000	3 ppb	3
36. Benzo(a)pyrene [PAH]	0.0002	1,000,000	200 ppt	0
37. Carbofuran	0.04	1000	40 ppb	40
38. Chlordane	0.002	1000	2 ppb	0
39. Dalapon	0.2	1000	200 ppb	200
40. Di(2-ethylhexyl)adipate	0.4	1000	400 ppb	400
41. Di(2-ethylhexyl)phthalate	0.006	1000	6 ppb	0
42. Dibromochloropropane	0.0002	1,000,000	200 ppt	0
43. Dinoseb	0.007	1000	7 ppb	7
44. Diquat	0.02	1000	20 ppb	20
45. Dioxin [2,3,7,8-TCDD]	0.00000003	1,000,000,000	30 ppq	0
46. Endothall	0.1	1000	100 ppb	100
47. Endrin	0.002	1000	2 ppb	2
48. Epichlorohydrin	TT		TT	0
49. Ethylene dibromide	0.00005	1,000,000	50 ppt	0
50. Glyphosate	0.7	1000	700 ppb	700
51. Heptachlor	0.0004	1,000,000	400 ppt	0
52. Heptachlor epoxide	0.0002	1,000,000	200 ppt	0
53. Hexachlorobenzene	0.001	1000	1 ppb	0
54. Hexachloro-cyclopentadiene	0.05	1000	50 ppb	50
55. Lindane	0.0002	1,000,000	200 ppt	200
56. Methoxychlor	0.04	1000	40 ppb	40
57. Oxamyl [Vydate]	0.2	1000	200 ppb	200
58. PCBs [Polychlorinated biphenyls]	0.0005	1,000,000	500 ppt	0
59. Pentachlorophenol	0.001	1000	1 ppb	0
60. Picloram	0.5	1000	500 ppb	500
61. Simazine	0.004	1000	4 ppb	4
62. Toxaphene	0.003	1000	3 ppb	0
Volatile Organic Contaminants				
63. Benzene	0.005	1000	5 ppb	0
64. Carbon tetrachloride	0.005	1000	5 ppb	0
65. Chlorobenzene	0.1	1000	100 ppb	100
66. o-Dichlorobenzene	0.6	1000	600 ppb	600
67. p-Dichlorobenzene	0.075	1000	75 ppb	75
68. 1,2-Dichloroethane	0.005	1000	5 ppb	0
69. 1,1-Dichloroethylene	0.007	1000	7 ppb	7

70. cis-1,2-Dichloroethylene	0.07	1000	70 ppb	70
71. trans-1,2-Dichloroethylene	0.1	1000	100 ppb	100
72. Dichloromethane	0.005	1000	5 ppb	0
73. 1,2-Dichloropropane	0.005	1000	5 ppb	0
74. Ethylbenzene	0.7	1000	700 ppb	700
75. Haloacetic Acids (HAA) (ppb)	0.060	1000	60	n/a
76. Styrene	0.1	1000	100 ppb	100
77. Tetrachloroethylene	0.005	1000	5 ppb	0
78. 1,2,4-Trichlorobenzene	0.07	1000	70 ppb	70
79. 1,1,1-Trichloroethane	0.2	1000	200 ppb	200
80. 1,1,2-Trichloroethane	0.005	1000	5 ppb	3
81. Trichloroethylene	0.005	1000	5 ppb	0
82. TTHMs [Total trihalomethanes]	0.10/.080	1000	100/80 ppb	n/a
83. Toluene	1		1 ppm	1
84. Vinyl Chloride	0.002	1000	2 ppb	0
85. Xylenes	10		10 ppm	10

Appendix B to 10 CSR 60-8.030
Regulated Contaminants

Key

AL=Action Level
MCL=Maximum Contaminant Level
MCLG=Maximum Contaminant Level Goal
MFL=million fibers per **///L**iter
mrem/year=millirems per year (a measure of radiation absorbed by the body)
NTU=Nephelometric Turbidity Units
pCi/L=picocuries per **///L**iter (a measure of radioactivity)
ppm=parts per million, or milligrams per **///L**iter (mg/L)
ppb=parts per billion, or micrograms per **///L**iter (μg/L)
ppt=parts per trillion, or nanograms per **///L**iter
ppq=parts per quadrillion, or picograms per **///L**iter
TT=Treatment Technique

Contaminant (units)	**MCLG**	**MCL**	**Major sources in drinking water**
Microbiological Contaminants			
1. Total Coliform Bacteria ***Until March 31, 2016.**	0	(Systems that collect 40 or more samples per month) ≥5% of monthly samples are positive; (systems that collect fewer than 40 samples per month) 1 positive monthly sample.	Naturally present in the environment.
--- **Total Coliform Bacteria** ***Beginning April 1, 2016.**	--- **N/A**	--- **TT**	--- **Naturally present in the environment.**
2. Fecal coliform and *E. coli* ***Until March 31, 2016.**	0	A routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive.	Human and animal fecal waste.
--- ***E. coli*** ***Beginning April 1, 2016**	--- **0**	--- **TT**	--- **Human and animal fecal waste.**
3. Total organic carbon (ppm)	N/A	TT	Naturally present in the environment.
4. Turbidity	N/A	TT	Soil runoff.
5. Fecal N/A Indicators (enterococci or coliphage)	TT		Human and animal fecal waste.
Radioactive Contaminants			
6. Beta/photon emitters (mrem/yr)	0	4	Decay of natural and man-made deposits.
7. Alpha emitters (pCi/L)	0	15	Erosion of natural deposits.
8. Combined radium (pCi/L)	0	5	Erosion of natural deposits.
9. Uranium	0	30	Erosion of natural deposits.

Inorganic Contaminants			
10. Antimony (ppb)	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.
11. Arsenic (ppb)	*[N/A[1]]* 0*[2]*	*[50[1]]* 10*[2]*	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
[[1]These arsenic values are effective until Jan. 23, 2006. *[2]These arsenic values are effective Jan. 23, 2006.]*			
12. Asbestos (MFL)	7	7	Decay of asbestos cement water mains; Erosion of natural deposits.
13. Barium (ppm)	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
14. Beryllium (ppb)	4	4	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries.
15. Bromate (ppb)	0	10	By-product of drinking water disinfection.
16. Cadmium (ppb)	5	5	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteries and paints.
17. Chloramines (ppm)	MRDLG=4	MRDL=4	Water additive used to control microbes.
18. Chlorine (ppm)	MRDL=4	MRDL=4	Water additive used to control microbes
19. Chlorine dioxide (ppb)	MRDLG=800	MRDL=800	Water additive used to control microbes
20. Chlorite (ppm)	0.8	1	By-product of drinking water disinfection.
21. Chromium (ppb)	100	100	Discharge from steel and pulp mills; Erosion of natural deposits.
22. Copper (ppm)	1.3	AL=1.3	Corrosion of household plumbing systems; Erosion of natural deposits.
23. Cyanide (ppb)	200	200	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories.
24. Fluoride (ppm)	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
25. Lead (ppb)	0	AL=15	Corrosion of household plumbing systems; Erosion of natural deposits.
26. Mercury [inorganic] (ppb)	2	2	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland.
27. Nitrate [as Nitrogen] (ppm)	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
28. Nitrite [as Nitrogen] (ppm)	1	1	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
29. Selenium (ppb)	50	50	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.
30. Thallium (ppb)	0.5	2	Leaching from ore-processing sites; Discharge from electronics, glass, and drug factories.
Synthetic Organic Contaminants Including Pesticides and Herbicides			
31. 2,4-D (ppb)	70	70	Runoff from herbicide used on row crops.
32. 2,4,5-TP [Silvex] (ppb)	50	50	Residue of banned herbicide.
33. Acrylamide	0	TT	Added to water during sewage/wastewater treatment.
34. Alachlor (ppb)	0	2	Runoff from herbicide used on row crops.
35. Atrazine (ppb)	3	3	Runoff from herbicide used on row crops.
36. Benzo(a)pyrene [PAH] (nanograms*/[l]*/**L**)	0	200	Leaching from linings of water storage tanks and distribution lines.
37. Carbofuran (ppb)	40	40	Leaching of soil fumigant used on rice and alfalfa.
38. Chlordane (ppb)	0	2	Residue of banned termiticide.
39. Dalapon (ppb)	200	200	Runoff from herbicide used on rights of way.
40. Di(2-ethylhexyl)adipate (ppb)	400	400	Discharge from chemical factories.
41. Di(2-ethylhexyl)phthalate (ppb)	0	6	Discharge from rubber and chemical factories.
42. Dibromochloropropane (ppt)	0	200	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.

43. Dinoseb (ppb)	7	7	Runoff from herbicide used on soybeans and vegetables.
44. Diquat (ppb)	20	20	Runoff from herbicide use.
45. Dioxin [2,3,7,8-TCDD] (ppq)	0	30	Emissions from waste incineration and other combustion; Discharge from chemical factories.
46. Endothall (ppb)	100	100	Runoff from herbicide use.
47. Endrin (ppb)	2	2	Residue of banned insecticide.
48. Epichlorohydrin	0	TT	Discharge from industrial chemical factories; An impurity of some water treatment chemicals.
49. Ethylene dibromide (ppt)	0	50	Discharge from petroleum refineries.
50. Glyphosate (ppb)	700	700	Runoff from herbicide use.
51. Heptachlor (ppt)	0	400	Residue of banned termiticide.
52. Heptachlor epoxide (ppt)	0	200	Breakdown of heptachlor.
53. Hexachlorobenzene (ppb)	0	1	Discharge from metal refineries and agricultural chemical factories.
54. Hexachlorocyclopentadiene (ppb)	50	50	Discharge from chemical factories.
55. Lindane (ppt)	200	200	Runoff/leaching from insecticide used on cattle, lumber, gardens.
56. Methoxychlor (ppb)	40	40	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, and livestock.
57. Oxamyl [Vydate] (ppb)	200	200	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes.
58. PCBs [Polychlorinated biphenyls] (ppt)	0	500	Runoff from landfills; Discharge of waste chemicals.
59. Pentachlorophenol (ppb)	0	1	Discharge from wood preserving factories.
60. Picloram (ppb)	500	500	Herbicide runoff.
61. Simazine (ppb)	4	4	Herbicide runoff.
62. Toxaphene (ppb)	0	3	Runoff/leaching from insecticide used on cotton and cattle.
Volatile Organic Contaminants			
63. Benzene (ppb)	0	5	Discharge from factories; Leaching from gas storage tanks and landfills.
64. Carbon tetrachloride (ppb)	0	5	Discharge from chemical plants and other industrial activities.
65. Chlorobenzene (ppb)	100	100	Discharge from chemical and agricultural chemical factories.
66. o-Dichlorobenzene (ppb)	600	600	Discharge from industrial chemical factories.
67. p-Dichlorobenzene (ppb)	75	75	Discharge from industrial chemical factories.
68. 1,2-Dichloroethane (ppb)	0	5	Discharge from industrial chemical factories.
69. 1,1-Dichloroethylene (ppb)	7	7	Discharge from industrial chemical factories.
70. cis-1,2-Dichloroethylene (ppb)	70	70	Discharge from industrial chemical factories.
71. trans-1,2-Dichloroethylene (ppb)	100	100	Discharge from industrial chemical factories.
72. Dichloromethane (ppb)	0	5	Discharge from pharmaceutical and chemical factories.
73. 1,2-Dichloropropane (ppb)	0	5	Discharge from industrial chemical factories.
74. Ethylbenzene (ppb)	700	700	Discharge from petroleum refineries.
75. Haloacetic Acids (HAA) (ppb)	n/a	60	By-product of drinking water disinfection.
76. Styrene (ppb)	100	100	Discharge from rubber and plastic factories; Leaching from landfills.
77. Tetrachloroethylene (ppb)	0	5	Discharge from factories and dry cleaners.
78. 1,2,4-Trichlorobenzene (ppb)	70	70	Discharge from textile-finishing factories.
79. 1,1,1-Trichloroethane (ppb)	200	200	Discharge from metal degreasing sites and other factories.
80. 1,1,2-Trichloroethane (ppb)	3	5	Discharge from industrial chemical factories.
81. Trichloroethylene (ppb)	0	5	Discharge from metal degreasing sites and other factories.
82. TTHMs [Total trihalomethanes] (ppb)	n/a	100/80	By-product of drinking water disinfection.
83. Toluene (ppm)	1	1	Discharge from petroleum factories.
84. Vinyl Chloride (ppb)	0	2	Leaching from PVC piping; Discharge from plastics factories.
85. Xylenes (ppm)	10	10	Discharge from petroleum factories; Discharge from chemical factories.

Appendix C to 10 CSR 60-8.030
Health Effects Language

Microbiological Contaminants

(1) Total Coliform. **Until March 31, 2016,** "Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems." **Beginning April 1, 2016, "Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in the water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments."**

(2) *[Fecal coliform/]E.coli*. **Until March 31, 2016,** "Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems." **Beginning April 1, 2016, "*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems."**

(3) Total organic carbon. "Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection by-products. These by-products include trihalomethanes (THMs) and haloacetic acids (HAAs5). Drinking water containing these by-products in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer."

(4) Turbidity. "Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

(5) Fecal Indicators under the Ground Water Rule (*E. coli*, enterococci, or coliphage). "Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems."

Radioactive Contaminants

*[(5)]***(6)** Beta/photon emitters. "Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer."

*[(6)]***(7)** Alpha emitters. "Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer."

*[(7)]***(8)** Combined Radium 226/228. "Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer."

*[(8)]***(9)** Uranium. "Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity."

Inorganic Contaminants

*[(9)]***(10)** Antimony. "Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar."

*[(10)]***(11)** Arsenic. "Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer."

*[(11)]***(12)** Asbestos. "Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps."

*[(12)]***(13)** Barium. "Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure."

*[(13)]***(14)** Beryllium. "Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions."

*[(14)]***(15)** Bromate. "Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer."

*[(15)]***(16)** Cadmium. "Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage."

*[(16)]***(17)** Chloramines. "Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia."

*[(17)]***(18)** Chlorine. "Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort."

*[(18)]***(19)** Chlorine dioxide. "Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia."

*[(19)]***(20)** Chlorite. "Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia."

*[(20)]***(21)** Chromium. "Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis."

*[(21)]***(22)** Copper. "Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor."

*[(22)]***(23)** Cyanide. "Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid."

*[(23)]***(24)** Fluoride. "Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums."

*[(24)]***(25)** Lead. "Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure."

*[(25)]***(26)** Mercury (inorganic). "Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage."

*[(26)]***(27)** Nitrate. "Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome."

*[(27)]***(28)** Nitrite. "Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome."

*[(28)]***(29)** Selenium. "Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation."

*[(29)]***(30)** Thallium. "Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver."

Synthetic Organic Contaminants Including Pesticides and Herbicides

*[(30)]***(31)** 2,4-D. "Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands."

*[(31)]***(32)** 2,4,5-TP (Silvex). "Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems."

*[(32)]***(33)** Acrylamide. "Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer."

*[(33)]***(34)** Alachlor. "Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer."

*[(34)]***(35)** Atrazine. "Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties."

*[(35)]***(36)** Benzo(a)pyrene (PAH). "Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer."

*[(36)]***(37)** Carbofuran. "Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems."

*[(37)]***(38)** Chlordane. "Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer."

*[(38)]***(39)** Dalapon. "Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes."

*[(39)]***(40)** Di(2-ethylhexyl)adipate. "Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement, or possible reproductive difficulties."

*[(40)]***(41)** Di(2-ethylhexyl)phthalate. "Some people who drink water containing di(2-ethylhexyl)phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer."

*[(41)]***(42)** Dibromochloropropane (DBCP). "Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer."

*[(42)]***(43)** Dinoseb. "Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties."

[(43)](**44**) Dioxin (2,3,7,8-TCDD). "Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer."

*[(44)]***(45)** Diquat. "Some people who drink water containing diquat in excess of the MCL over many years could get cataracts."

*[(45)]***(46)** Endothall. "Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines."

*[(46)]***(47)** Endrin. "Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems."

*[(47)]***(48)** Epichlorohydrin. "Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer."

*[(48)]***(49)** Ethylene dibromide. "Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer."

*[(49)]***(50)** Glyphosate. "Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties."

*[(50)]***(51)** Heptachlor. "Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer."

*[(51)]***(52)** Heptachlor epoxide. "Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer."

*[(52)]***(53)** Hexachlorobenzene. "Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer."

*[(53)]***(54)** Hexachlorocyclopentadiene. "Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach."

*[(54)]***(55)** Lindane. "Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver."

*[(55)]***(56)** Methoxychlor. "Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties."

*[(56)]***(57)** Oxamyl (Vydate). "Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects."

*[(57)]***(58)** PCBs (Polychlorinated biphenyls). "Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer."

*[(58)]***(59)** Pentachlorophenol. "Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer."

*[(59)]***(60)** Picloram. "Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver."

*[(60)]***(61)** Simazine. "Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood."

*[(61)]***(62)** Toxaphene. "Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer."

Volatile Organic Contaminants

*[(62)]***(63)** Benzene. "Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer."

*[(63)]***(64)** Carbon Tetrachloride. "Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer."

*[(64)]***(65)** Chlorobenzene. "Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys."

*[(65)]***(66)** o-Dichlorobenzene. "Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems."

*[(66)]***(67)** p-Dichlorobenzene. "Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood."

*[(67)]***(68)** 1,2-Dichloroethane. "Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer."

*[(68)]***(69)** 1,1-Dichloroethylene. "Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver."

*[(69)]***(70)** cis-1,2-Dichloroethylene. "Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver."

*[(70)]***(71)** trans-1,2-Dicholoroethylene. "Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver."

*[(71)]***(72)** Dichloromethane. "Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer."

*[(72)]***(73)** 1,2-Dichloropropane. "Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer."

*[(73)]***(74)** Ethylbenzene. "Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys."

*[(74)]***(75)** Haloacetic Acids (HAA). "Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer."

*[(75)]***(76)** Styrene. "Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system."

*[(76)]***(77)** Tetrachloroethylene. "Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer."

*[(77)]***(78)** 1,2,4-Trichlorobenzene. "Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands."

*[(78)]***(79)** 1,1,1-Trichloroethane. "Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system."

*[(79)]***(80)** 1,1,2-Trichloroethane. "Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems."

*[(80)]***(81)** Trichloroethylene. "Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer."

*[(81)]***(82)** TTHMs (Total Trihalomethanes). "Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer."

*[(82)]***(83)** Toluene. "Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver."

*[(83)]***(84)** Vinyl Chloride. "Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer."

*[(84)]***(85)** Xylenes. "Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system."

*AUTHORITY: section 640.100, RSMo Supp. [2011] **2014**, and section 640.125.1, RSMo 2000. Original rule filed July 1, 1999, effective March 30, 2000. For intervening history, please consult the **Code of State Regulations**. Amended: Filed Aug. 12, 2015.*

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 OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Safe Drinking Water Commission will hold a public hearing on this proposed amendment at 10:00 a.m. on October 16, 2015 at the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri. Any interested person may comment during the public hearing in support of or in opposition to the proposed amendment. Written comments postmarked or received by October 19, 2015 will also be accepted. Written comments must be mailed to: Scott Weckenborg, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102, or hand-delivered to the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri.

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 60—Safe Drinking Water Commission
Chapter 9—Record Maintenance

PROPOSED AMENDMENT

10 CSR 60-9.010 Requirements for Maintaining Public Water System Records. The commission is amending subsection (4)(D) and adding section (5).

PURPOSE: This proposed amendment adopts record keeping requirements from the revisions to the Total Coliform Rule (TCR) under the new Revised Total Coliform Rule (RTCR), 78 Federal Register 10269. Systems must maintain Level 1 and 2 assessment forms, records of corrective actions, and records of repeat samples that meet criteria for an extension of the twenty-four (24) hour period for collecting repeat samples.

(4) Record-Keeping Requirements for the Ground Water Rule. These requirements are in addition to any other applicable record-keeping requirements of this rule.

(D) For consecutive systems, documentation of notification to the wholesale system(s) of total-coliform positive samples that are not invalidated under 10 CSR 60-4.020(3**) until March 31, 2016, or under 10 CSR 60-4.022(3) beginning April 1, 2016,** shall be kept for a period of not less than five (5) years.

(5) Recordkeeping requirements of the Revised Total Coliform Rule.

(A) The system must maintain Level 1 and Level 2 assessment forms, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under 10 CSR 60-4.022(8) for department review. This record must be maintained by the system for a period not less than five (5) years after completion of the assessment or corrective action.

(B) The system must maintain a record of any repeat sample taken that meets department criteria for an extension of the twenty-four (24)-hour period for collecting repeat samples as provided for under 10 CSR 60-4.022(8)(A)1.

*AUTHORITY: section 640.100, RSMo Supp. [2009] **2014**. Original rule filed May 4, 1979, effective Sept. 14, 1979. For intervening history, please consult the **Code of State Regulations**. Amended: Filed Aug. 12, 2015.*

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 OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Safe Drinking Water Commission will hold a public hearing on this proposed amendment at 10:00 a.m. on October 16, 2015 at the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri. Any interested person may comment during the public hearing in support of or in opposition to the proposed amendment. Written comments postmarked or received by October 19, 2015 will also be accepted. Written comments must be mailed to: Scott Weckenborg, MDNR Public Drinking Water Branch, PO Box 176, Jefferson City, MO 65102, or hand-delivered to the Lewis and Clark State Office Building, 1101 Riverside Drive, Jefferson City, Missouri.

Title 20—DEPARTMENT OF INSURANCE, FINANCIAL INSTITUTIONS AND PROFESSIONAL REGISTRATION
Division 2120—State Board of Embalmers and Funeral Directors
Chapter 2—General Rules

PROPOSED AMENDMENT

20 CSR 2120-2.100 Fees. The board is amending subsection (1)(FF).

PURPOSE: The purpose of this amendment is to update the seller per contract annual reporting fee for contracts sold on or after September 1, 2015.

(1) The following fees hereby are established by the State Board of Embalmers and Funeral Directors:

(FF) Seller per Contract Annual Reporting Fee (for contracts executed on or after *[August 28, 2009]* **September 1, 2015**) *[$36]* **$25**

*AUTHORITY: section 333.111.1, RSMo 2000**,** and section 333.340, RSMo Supp. [2010] **2013**. This rule originally filed as 4 CSR 120-2.100. Emergency rule filed June 30, 1981, effective July 9, 1981, expired Nov. 11, 1981. Original rule filed June 30, 1981, effective Oct. 12, 1981. For intervening history, please consult the **Code of State Regulations**. Emergency amendment filed Aug. 11, 2015, effective Aug. 21, 2015, expires Feb. 25, 2016. Amended: Filed Aug. 11, 2015.*

PUBLIC COST: This proposed amendment will cost state agencies or political subdivisions approximately one hundred sixty-three thousand nine hundred dollars ($163,900) annually for the life of the rule. It is anticipated that the costs will recur for the life of the rule, may vary with inflation, and are expected to increase at the rate projected by the Legislative Oversight Committee.

PRIVATE COST: This proposed amendment will save private entities approximately one hundred sixty-three thousand nine hundred dollars ($163,900) annually for the life of the rule. It is anticipated that the costs will recur for the life of the rule, may vary with inflation, and are expected to increase at the rate projected by the Legislative

Oversight Committee.

NOTICE TO SUBMIT COMMENTS: Anyone may file a statement in support of or in opposition to this proposed amendment with the State Board of Embalmers and Funeral Directors, Sandy Sebastian, Executive Director, 3605 Missouri Boulevard, PO Box 423, Jefferson City, MO 65102-0423, by facsimile at (573) 751-1155 or via email to embalm@pr.mo.gov. 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.*

PUBLIC FISCAL NOTE

I. RULE NUMBER

Title 20 - Department of Insurance, Financial Institutions and Professional Registration
Division 2120 - State Board of Embalmers and Funeral Directors
Chapter 2 - General Rules
Proposed Amendment - 20 CSR 2120-2.100 Fees

II. SUMMARY OF FISCAL IMPACT

Affected Agency or Political Subdivision	Estimated Loss of Revenue	
State Board of Embalmers and Funeral Directors		$163,900
	Total Loss of Revenue Annually for the Life of the Rule	**$163,900**

III. WORKSHEET

See Private Entity Fiscal Note

IV. ASSUMPTIONS

1. The total loss of revenue is based on the cost savings to private entities reflected in the Private Fiscal Note filed with this rule.
2. The board utilizes a rolling five (5)-year financial analysis process to evaluate its fund balance, establish fee structure, and assess budgetary needs. The five (5)-year analysis is based on the projected revenue, expenses, and number of licensees. Based on the board's recent five (5)-year analysis, the board voted on a reduction in seller per contract annual reporting fee.

PRIVATE FISCAL NOTE

I. RULE NUMBER

Title 20 - Department of Insurance, Financial Institutions and Professional Registration
Division 2120 - State Board of Embalmers and Funeral Directors
Chapter 2 - General Rules
Proposed Amendment - 20 CSR 2120-2.100 Fees

II. SUMMARY OF FISCAL IMPACT

Estimate the number of entities by class which would likely be affected by the adoption of the proposed amendment:	Classification by type of the business entities which would likely be affected:	Estimated savings for compliance with the amendment by affected entities:
325	Seller Per Contract Annual Reporting Fee (14,900 Report Fees @ $11 decrease)	$163,900
	Estimated Cost Savings Annually for the Life of the Rule	**$163,900**

III. WORKSHEET

See table above.

IV. ASSUMPTION

1. The figures reported above are based on FY 2015 projections.
2. It is anticipated that the total fiscal savings will occur beginning in FY2017, may vary with inflation, and is expected to increase at the rate projected by the Legislative Oversight Committee.

Note: The board is statutorily obligated to enforce and administer the provisions of Chapter 333, RSMo. Pursuant to section 333.111, RSMo, the board shall by rule and regulation set the amount of fees authorized by sections 333.011 to 333.340, RSMo, at a level to produce revenue which shall not substantially exceed the cost and expense of administering sections 333.011 to 333.340, RSMo.